THE AMERICAN ARCHITECT AND BUILDING NEWS.

VOL. XVII. Copyright, 1885, JAMES R. OSGOOD & Co., Boston, Mass. No. 483.

MARCH 28, 1885.

Entered at the Post-Office at Boston as second-class matter.

CONTENTS.

SUMMARY: —
"Monographs of American Architecture." — The rumored Removal of the Architect of the United States Capitol.— Burning of the Langham Hotel, Chicago, Ill. — The Rotch Travelling Scholarship. — Accidents to Workmen. — Punctured Wounds. — Burns.— Broken Limbs.— The New York Chapter, A. I. A., and the Bolivar Statue. 145
THE DELLA ROBBIAS. — II. 147
TEMPERED GLASS. 149
PHOTOGRAPHY IN THE PRINTING-PRESS. — I. 149
THE ILLUSTRATIONS: —
North Porch of Chartres Cathedral. — Competitive Design for Barn. — Palazzo Pesaro, Venice. — Austin Hall, Cambridge, Mass. — Fireplace in Austin Hall. — St. Etienne du Mont, Paris, France. 151
THE LATE LUDWIG BOHNSTEDT. 151
THE *American Architect* STABLE COMPETITION. — V. 151
COMPARATIVE EFFICIENCIES OF STEAM AND HYDRAULIC ELEVATORS. 153
COMMUNICATIONS: —
Competitions. — A Question in Fire-proofing. — Size of Water-Tank. — Which is the Largest Building in New England? 153
NOTES AND CLIPPINGS. 154

AFTER debating for some time the question how we could best take advantage of our opportunities and facilities to promote the interests of architecture in this country, we have decided that one of the most seemingly promising ways open to us is to publish from time to time a series of what may be called "Monographs of American Architecture," and we now announce the speedy publication of the first of the series. The subjects of these monographs will probably at first be the same buildings that are published as gelatine plates in our gelatine edition — but at a larger scale — shown both in general views and in detail. Of these details there will be in each case as many as the architectural features of the building may warrant, — a variable quantity with each building, so that the number of plates belonging to each monograph will sometimes be more or less than those in the preceding issues, and consequently it is quite probable that the price will be adjusted to each case. As to this, since our purpose is not to publish *editions de luxe*, but something of value to poor as well as rich architects — if there be such — we can at this stage of proceedings only say that the price will be as moderate as possible. The first monograph will be Austin Hall, which is published as a gelatine plate with this issue, and will be illustrated by eighteen gelatine plates.

WE have not much fear that there is any truth in the rumor that General Rosecrans is to be rewarded for "party service" by superseding as architect of the Capitol, Mr. Edward Clark, the present incumbent, who has held the position undisturbed for many years, discharging the duties he has been called on to perform — the completion of unfinished portions, the alterations of the legislative chambers, and the designing of new work — to the *marked* acceptance of every one. Not only would such a substitution be contrary to what, on general principles, might be expected of President Cleveland, but he has as Governor of New York had unusual facilities for learning what qualifications are likely to be desirable in the architect of a great public building, and by his treatment of the questions concerning the Albany Capitol submitted to him as Governor, he has shown that he has appreciated them at their proper value. No hint that Mr. Clark was considered by any one as not entirely qualified for the position, or that he could in any way be considered as holding a political office, and therefore subject to removal, has ever reached us. If it had been General Meigs who had been mentioned as Mr. Clark's successor there would have been a reasonableness about the suggestion which the present one lacks, for it would be in his case, in a sense, the resumption of an interrupted task. No, a great public building is as susceptible of disease, and resents the application of improper cures, as much as does the human body, and to entrust it to a political war-horse every fourth year would be as fatal as to attempt to prolong life by living on the nostrums of a quack changed every four years.

ONE result of the recent burning of a private house in Philadelphia, which caused the death of all but one of the inmates, was the extraordinary demand that followed for life-ropes, fire-extinguishers, hand-pumps, and all the make-shift safeguards which exist because safe buildings do not. The temporary effect of the burning of the Langham Hotel, at Chicago, Ill., last Saturday, at which, thanks to its occurring early in the evening, only five or six persons lost their lives, may be somewhat similar, but permanent effect there will be none. Other buildings, elsewhere if not in Chicago, never intended for hotels, will be altered so as to form huge caravansaries with labyrinthine passages, as in this case; with eight or ten wood-lined air-shafts, as in this case, and heated by stoves in the lower story, whose smoke-pipes, as in this case, will traverse partition after partition, till they reach the chimney ascending alongside the elevator-shaft. Self-interest is the target at which to aim, and though public opinion and the most enlightened of the insurance companies are doing something to encourage better building, it makes one ache to think how slow the progress is. Some philanthropist with plenty of money to risk in defending libel suits might do a deal of good by ferreting out such fire-traps and mercilessly exposing them in the newspapers, not only once, but again and again, till the publicity has affected the owner's pocket and at last he sees that the alternatives are ruin or reconstruction. It might not be a wholly bad plan to authorize building inspectors to advertise such places in the daily papers continuously as notoriously unsafe. Almost anything would be better than the cruel destruction of life and property that goes on year after year, almost unchecked.

THE second annual competition for the Rotch Travelling Scholarship will begin at the Museum of Fine Arts, Boston, on Saturday, April 4, at nine o'clock, and, as before, will be open to young men under thirty years of age who have been employed for two years at least in the offices of Massachusetts architects. In general the examinations will be conducted on the same line as last year; but in one point a change, an advantageous one, has been made: the aspirants admitted to the final competition in design will be allowed but two weeks in which to work out their *projet*, and, as a consequence, their anxiety and the strain under which some would probably work will be halved, while we believe that the temptation that was offered by the longer period of last year to prepare for and carry out elaborately finished drawings being now removed, the attempt will be more in the line of strict architectural effect than in that of mere draughtsmanship. The chance of winning the opportunity to spend two years in Europe ought to bring the best men to the front; and when he sees that the limit of age is fixed at thirty years, many a sedate married man may regret that he is not still a bachelor and free to try for the prize. If the winner this year will follow worthily the example set by the holder of the first scholarship, the founders should feel well satisfied.

A PAPER was recently read before the Conservatoire des Arts et Métiers in Paris, by Dr. Hector George, and reported by *Le Génie Civil*, on the early treatment of cases of accident to workmen. Notwithstanding all the precautions which are now taken in the best managed manufactories, an appalling number of such accidents occur every year, and their sad consequences might be greatly alleviated if all workmen were made familiar with the simple rules which Dr. George collected in his discourse. The first class of wounds treated of comprises those caused by crushing or tearing, such, for instance, as the result of striking a finger or thumb by a misdirected blow of a hammer, or of having the arm or hand caught in belts or gearing. The consequence of these accidents is usually a pounding and crushing of the flesh, and often of the bones, which is apt to result in mortification, and the common practice of surgeons in such cases is to amputate the injured member at once. According to Dr. George, however, if the patient is treated in time, the limb can often be saved by the simple application of water. During the period of the Napoleonic wars, to follow the doctor's story, while testing cannon at Strasbourg, eleven artillery-men were injured, either by the premature explosion of the guns or by the bursting of imperfect pieces, and were brought into the hospital together. The wounds, some of which were caused by the tearing of the hands by the explosion of guns while the cartridge was being rammed into place, while others were contusions from flying

pieces of bursting guns, were all serious, and a discussion took place among the surgeons as to the amputations to be performed. In the midst of this an Alsatian miller came in, and begged the privilege of treating the wounded, earnestly promising to cure them. He was allowed a trial, and immediately called for some water, into which he threw a little white powder, which was afterward found to be alum. He then proceeded to bathe the wounds with the water, accompanying his movements with mysterious gestures and muttered words of unknown import. After bathing the wounds thoroughly, he covered them with lint, and bandaged them well, first soaking the lint with the water, which he renewed by sprinkling every three hours. At the end of six weeks all the wounded were discharged, cured. Since that time the water treatment has been employed in similar cases by surgeons of great distinction, and with signal success. The application is very simple. Water of any kind may be used, without alum or incantations, only taking care that it is clean, and cool in summer and slightly warmed in winter. The wound is first to be carefully washed, and then covered with a wet linen bandage, or, what is better, a soft woolen material, thoroughly soaked, and with an inner bandage of linen to prevent the wool from irritating the wound. The bandages must be kept moist by frequent applications of a sponge or wet cloth. This constant soaking of the wound relieves the pain, and keeps the tissues in a favorable condition for healing. According to the account, the treatment is particularly advantageous for wounds in the hands, which form eighty-seven per cent of all the injuries caused by machinery.

THE next class of accidents mentioned comprises those which cause punctured wounds. Although less frightful in appearance than more extensive injuries, punctured wounds are often followed by serious, or even fatal consequences, through the poisoning of the system by infectious matters so introduced into the blood. Anatomists and medical students, as is well known, often lose their health, and sometimes their lives, from the results of an accidental scratch from a scalpel used in dissecting a subject, and butchers not unfrequently suffer in a similar way, particularly if they have been handling an animal infected with a contagious disease. In such cases, the old practice was to burn out the wound at once with a white-hot iron, or some less terrible caustic; but it seems that an effect equally favorable can be obtained by keeping the wound open and encouraging it to bleed. The extraction of the blood from the puncture is particularly necessary when the wound is first given, and the injured part should be held under a thin stream of tepid water, and the blood even sucked out by some self-sacrificing person, as is done by savages when one of their number is bitten by a venomous snake.

FOR burns, the doctor advises the application of cold water for a first application, with perhaps a coat of varnish later, to prevent the painful contact of air with the injured skin. Where the burn is deep, so that the skin is blistered, the utmost care must be taken in removing the clothes not to tear away the skin, which is likely to adhere strongly to the cloth; as the exposure of the nerves of the inner skin to the air by the removal of the epidermis causes pain so intense as often to prove fatal to the patient. If, by misfortune, the blistered epidermis should be torn, it must be restored to its place, piece by piece, or, if this is impracticable, an artificial skin must be at once applied, formed of oiled linen or paper, if nothing better can be had. If the materials are at hand, the best application is a mixture of equal parts of lime-water and olive oil, covered with fine linen and a piece of cotton batting; and as soon as these are applied, a physician must be sent for. We are rather surprised not to have found something in the paper about the application of common soda or saleratus to superficial burns. The liniment of lime-water and oil has a little of the same alkaline character, but neither of them is as easily procured, at least in most households, as the saleratus or soda which are known to relieve so effectually the pain of an ordinary burn.

IN cases of fracture, as, for example the breaking of the leg of a workman by falling from a stage, the first thing to be done is to lift the sufferer with great care, assigning one person to manage the injured limb. A blind, or board of some kind, is then to be slipped beneath, and the patient gently laid on it, placing a pillow under the broken leg, which should be extended at full length. He is then to be carried very gently, avoiding all jolts and collisions, to his house, remembering, in case it is necessary to take him up or down stairs, to keep his feet highest, so that the weight of the body may not come upon the injured member. Once at home, his clothes are to be taken off by ripping the seams, and the leg gently bandaged with wet linen, to await the surgeon's arrival. Lastly, for wounds which cause serious bleeding, attention must be given at once to checking this, since the loss of only two or three quarts of blood is fatal. The first thing to be done is to raise the bleeding part as high as possible, so that the weight of the blood may of itself draw it away from the open vein or artery. A simple bandage should then be applied, either above or below the wound, according as the blood is bright-colored and flows in pulsations, or is dark and flows uniformly, placing a stone or a knot in the bandage, if necessary, to press upon the spot where, as is found by testing with the finger, the flow seems to be best controlled. As soon as possible, the wound should be washed with clear water, and a wet linen cloth applied over it; and, as before, a surgeon's aid should be sought at once.

THE American Institute of Architects, or rather its New York Chapter, has had the misfortune to fall under the displeasure of the editor of the *Studio*, on account of its failure to condemn with what the editor considers sufficient emphasis the modelling of the statue of General Bolivar, which a number of ill-advised persons in South America, after going to a good deal of trouble and expense about the matter, have had the temerity to offer, as a token of their regard, to the citizens of New York. We know of no evidence that the design and workmanship of the statue are not highly creditable to the small and isolated country from which it comes, and, at least, they could not well be worse than those of the figures which are supposed to ornament the most public places in nearly all parts of the United States; but New York, although it possesses its full share of these decorations, is now guarded by persons who scrutinize all new acquisitions with a severity of criticism which would be commendable, if it did not occasionally overstep the bounds of discreet good taste.

IT is hardly necessary to say that the ideal of criticism to which the editor of the *Studio* holds is that of an assault which leaves its object floundering in the dust; and as the President of the New York Chapter of the Institute, who was officially asked for his opinion on the Bolivar statue, simply reported that it was "only moderately successful as a work of art," he is accused of failing in his duty to the public, which might, if Mr. Kendall had indulged in sufficiently fierce denunciations, have been excited to rise against the Park Commissioners, and compel the destruction or rejection of the statue. Although there would have been some interest in such a dramatic event as this, we think we can see several reasons why Mr. Kendall preferred not to be the leader of the movement. One of these probably was, that being asked a simple question, he chose to tell the truth in his answer; and the truth in this case is exactly expressed by the words of his reply. It is fatuous to say, as the *Studio* does, that "the Bolivar in the Central Park is not a man, and the beast he bestrides is not a horse." No one ever made such claims for any statue, and if the Bolivar monument looks something like a man mounted on a horse, it accomplishes everything in that respect that is to be expected of any piece of sculpture. Judged by our standard in such matters, the modelling of the horse is probably defective; but it could not be mistaken for a cow, and, considering how conventional and false our standard is, Mr. Kendall's report on this point expresses the precise truth, without exaggeration or mitigation. If the opinion of the New York Chapter had been asked as to the advisability of accepting and setting-up the statue, we are sure that every member would have joined in conceeding that courtesy, gratitude and international kindness are occasionally as much to be regarded as the proportions of the costly present which is intended to give expression to these sentiments; but this subject was not proposed to them for discussion, and in answering the single question submitted to him, Mr. Kendall seems to us to have shown a wise sincerity which will tend to gain for him and the organization speaking through him increased influence among the public in matters of art.

THE DELLA ROBBIAS.[1] — II.

Medallion by Andrea Della Robbia from the Hospital of the Innocents, Florence. (From *L'Art.*)

TO make clear the value of Luca Della Robbia's artistic personality, I must begin a long way back, must note the influences which had been at work before his day, as well as the contrasting individualities which stood next his own.

Between the seventh and eleventh centuries, Italian sculpture was very poor in quality and by no means rich in quantity. In style it varied between a barbaric rudeness and a stiff Byzantine conventionality; and monumental work in stone was almost abandoned for decorative work in metal. The development of Romanesque architecture brought about a revival, but a revival which had less of originality and less of vigor than we find in contemporary work beyond the Alps. Architecture, the nursing mother of all the other arts, caused them to vary with her own varying desires. The southern architect loved breadth and repose where the northern loved animation and multitudinous detail; and he loved color more than form in decoration. Northern Romanesque depends for its decorative beauty upon form in sculptured figures and architectual details, Tuscan chiefly upon the hues of inlaid marbles and pictorial mosaics. The chisel's rôle was primary in the north, here it was but accessory.

Of architectural detail proper we find comparatively little, and such figure sculpture as there is takes the form of relief very much more often than the form of independent figures. At the beginning of the thirteenth century, when Niccolo Pisano was born, Italian sculpture could in no sense take rank with the Romanesque sculpture of the North, then just beginning, as it was to develop into its still more admirable Gothic phase.

Color, as I have said, was the chief love of the southern artist, and the field in which his greatest triumphs were achieved. And the remark is true not only of those early days when sculpture was actually neglected in its favor, but of the period of full development as well, of the period when the sun of the Renaissance, expanding the many-petalled flower of art, produced sculpture which stands second only to the Greek. For the painting then produced was, unless reasoning from analysis leads us very far astray, even greater than the painting of the Greeks: wonderful as was the bloom of Italian art beneath the chisel it was still more wonderful, and much more prolific beneath the brush. Yet, strangely enough, the art of Italy made each of its onward steps under the guidance not of the painter but of the sculptor. The very first step of all was made by Niccolo Pisano, and all along the later line we find his followers ever in advance of their brethren of the sister art. Strangely enough, I say, but only to the superficial eye, the eye which judges by ultimate results and not by their first causes. For the breath of inspiration came in the beginning from the relics of antiquity, and as these relics were carved, not painted, it is but natural that their lesson should have been learned first by the sculptor, and by him transmitted to the painter.

Niccolo Pisano is indeed the father of all Italian art. It is true that a distinct reaction followed upon his work and that his tendency, his ideals, afterwards to become all-powerful, seemed to fade for a time in face of another tendency, of ideals of another kind. He was a Classicist and his immediate successors were Gothicists. He cared most for beauty. They cared most for life and energy, for dramatic passion and emotional expression. But this fact, a knowledge of which is very necessary to our understanding of Italian sculpture, is nevertheless of secondary importance. The fact of prime importance is that Niccolo burst the chrysalis of art, that he freed sculpture on the one hand from the trammels of Byzantine convention, and saved it on the other from the license of undirected effort. The main facts are that he taught men that they might see with their own eyes, and that they ought to *choose* what things they would look at; and that the lesson was sympathetically received and fruitfully put in practice. It is but a secondary point, I repeat, that the master should have chosen to see the ancients, and his first followers should have chosen to see the body and soul of Christian man. History offers no more striking picture of an artist at once vitally influential and virtually isolated. Every chisel in Italy showed the effect of Niccolo's work, and yet in its character that work stood by itself. A few men before him seemed indeed to have aspired as he; but none had been able really to express their aspirations. And a few of his scholars tried to persist in his path, but their work is of almost no importance compared with the work of those who struck into another road, led by his own son Giovanni.

In his ideals and his tendencies, Niccolo was in fact before his time. The soil was not yet ploughed for that classic seed which later should find such fruitful fields. For one thing the age was still too Christian. A thoroughly Christian art cared, of necessity, wholly for story-telling, for dramatic expression, for the rendering of varied personal emotions; could care but very little for pure physical beauty, for the pure delighting of the eye. (The great French Gothic school, for instance, cared vastly for expression and vastly also for *architectural* beauty, but comparatively very little for *sculptural* beauty as the Greeks, as Niccolo, as the fifteenth-century Italians understood the term). The age was still too Christian and it was also, on the other hand, still too much excited and unsettled by the new life that was throbbing in its veins, by the new views of man and the world, of the *individual* in his many-sided powers and possibilities, that were opening out before it. Until this new life had somewhat crystallized — until the veils and motes and beams of mediæval prejudice, the fetters of mediæval asceticism had been swept away, until the modern man had learned to understand himself a little better — the proper balance between truth and beauty, between expression and form, which art demands could not be perceived. And until the Classic spirit in its general essence had been somewhat digested, the artist could not assimilate its qualities, he might try to *copy* the results of the antique, he could not *translate* its spirit into modern idioms of line and color. It was not strange that Giovanni and all his fellows of the fourteenth century should be dramatic in their treatment of their themes, naturalistic in their way of rendering Christian sentiment through moods and situations of intense emotion; the marvel was that Niccolo should have had so classic a love for beauty of form and for unemotional repose. It is not wonderful that he should have been an isolated artist; it is wonderful that he should have lived at all. It was inevitable that a reaction should come when he departed, inevitable and also most desirable. For had it been possible that a Classicizing Renaissance should base itself immediately on the Italian art of the thirteenth century, with its scant knowledge of inferior ancient relics and its scanter technical ability, had it not been prefaced by a long period when *nature* was the teacher, it would have been something very different from the Renaissance that we know. With the teaching of nature alone Italian sculpture might never have risen even to the height attained by the northern Gothic school; for it would have had less help from architecture. But with the teaching of the antique alone it could never have been more than a most imperfect copy of pagan art. The joining of both streams of influence was needed to make it what it was.

It is interesting to see how they both flow together through the centuries that divide Niccolo Pisano from Michael Angelo, nay from the latest of Venetians; neither ever wholly lost, though one and now the other predominates in the work of an individual, now one and now the other in the work of an entire school or epoch. And it is as interesting to trace them back and find that each starts in the work of one of "the Pisani." We cannot but compare the two, father and son, and mark their differences; cannot but contrast the classic, passionless, sculpturesque beauty in Niccolo's reliefs with the intense, energetic, expressive naturalism of Giovanni's. But one likes still better to think of them together as "the great twin brethren" who were the forerunners, the prophets, the teachers, in very truth the fathers of all that Italian art was ever to accomplish.

We must not forget that there was a direct special influence which, in combination with the general spirit of the age, worked to turn Giovanni away from his father's path. This was the influence of the Gothic of the north, absorbed, perhaps, during a journey beyond the Alps, more likely from certain German sculptors, who, we know worked in Italy when Giovanni was young. They were employed, for instance, with many Italians, upon the façade of the Orvieto cathedral; and the building well marks the epoch, since it is the first in Tuscany where sculpture — figure sculpture and architectural carving — plays at least an equal decorative part with color. The fourteenth century is the Gothic age of Italy, and the greater use of monumental sculpture was a natural consequence of northern influence. Yet it is almost impossible to say how large was the part directly played by the Pisani in its development. As architects their influence was very great, and extended over the whole length and breadth of Italy.[2] And had not Niccolo been the first to show his countrymen what the chisel might accomplish?

[1] Continued from page 127, No. 481.

[2] The rôle played by Niccolo and Giovanni Pisano in architecture does not concern us here, but it is as well worthy of consideration as the rôle they played in sculpture.

The stream of Classic influence seems weak throughout the fourteenth century, but we must not conceive of it as dry or stagnant, must not think that the claims of pure sculptural beauty were ever quite forgotten or denied. The time is perfectly expressed in Dante's writings. Dante, too, is chiefly Christian in sentiment, chiefly dramatic in treatment, but the growing importance of the human *individual* speaks from his every page, and the place, for instance which he gives to Virgil in his scheme tells the strength of the Classic influence very Clearly. It was the Classic influence, transmitted from the Romans, greatly reinforced by Niccolo, which made Italian sculptors always prefer the relief, at least until very late Renaissance days, (and then, by the way, it was the influence of the newly discovered free statues of antiquity which turned them away from the models they had earlier found in Roman sarcophagi). Through the Classic influence they learned to use the relief in an infinitely more artistic way than any northern school; learned to recognize the demands of its fields and to fit thereto their most multitudinous groups; and learned to master all its different levels from the highest to the very lowest. Yet nevertheless all the great men of the fourteenth century seem *chiefly* Christian and naturalistic in their aims — Andrea and the lesser so-called Pisani, Orcagna, Arnolfo del Cambio — greater as an architect than as a sculptor — Giotto and the rest.[1] The last name is the most important, not as being that of the greatest sculptor who followed Giovanni, Andrea Pisano claims this place, but as being that of him by whom the now vital art passed over from the chisel to the brush.

With the incoming of the fifteenth century we note a change. The Gothic sculptors had studied their subject, humanity, from many sides; for sculptural beauty somewhat, for physical truth still more, but most of all for spiritual force. The early Renaissance sculptors persisted in all three of these efforts, but gave a more prominent place than before to sculptural beauty, a lesser place than before to spiritual force, and the most important place of all to physical truth. They are not only naturalistic but *realistic* in their aims. A portrait-like rendering of the individual body seems to have attracted them beyond all else. Among the great fifteenth century names, Della Quercia, Donatello, Luca Della Robbia, Verrochio, Mina da Fiesole, Desiderio, Matteo Civitali, Benedetto da Majano (the list is endless), Donatello's stands out as the most characteristic, the most typical; and Donatello was the greatest "realist" of all. But Italian art was so well-balanced and harmoniously-rounded a development that we must not push too far the significance of defining epithets. It is easy and it is in a way correct to say, for instance, that Donatello is a realist and, by comparison, Ghiberti an imaginative idealist. But in such a decision, we really note not radical contrasts implying narrow, strictly-marked limitations, but delicate contrasts implying a slight preponderance of one quality over others which are just as truly present. It is better to say that each and all of the great fifteenth century artists are many-sided, that each and every one resumes within himself, in spite of his leaning a little to the one side or the other, what all resume together — the entire three-streamed tendency of the time toward a perfect art combining beauty, truth, and spiritual feeling. If Donatello were absent who would but call Ghiberti a great realist? and if one looked only at such among Donatello's works as the "St. Cecilia," for example, or the "Triumph of Bacchus" in Florence, or the bronze *patera* in the South Kensington Museum, who but would call him a true disciple of antique art, a true Classicist in his love for pure sculptural beauty? And is not the Classic influence very visible in the character of even his utmost realism, in the *choice* he makes between what subjects he shall take for realistic rendering, in the rarity — perhaps it is not entire absence — of examples where ugly types have tempted eye and chisel? And the same good taste shows through all the realistic work of Italy, save, of course, when definite portraiture has been required. And even here, even when the ugliest of sitters has been rendered with a fidelity and truth unsurpassed, nay, unapproached, in any age whatever, even here a certain subtile charm has been diffused which makes the result to be beautiful as art.[2] Thoroughly, inimitably realistic as was the portrait-sculpture of Italy it was never crudely, bluntly, baldly realistic as was so much Gothic art, as is so much modern art to which the same adjective is applied. And for this virtue it was indebted to the uninterrupted persistance of the Classic influence.

Yet, to return to our two great masters, it is nevertheless true that when the work of each is considered as a whole, realism predominates in that of Donatello, the love of beauty in that of Ghiberti. Luca Della Robbia was not so great a man as either — not so powerful, not so versatile, not nearly so imaginative or profound, and, coming after them, he had learned from each that which each had developed for himself. And yet, as I wrote before, he stands very high and his station is unique. It is unique just because with him we cannot say which tendency predominates, whether the love of individual truth or the love of beauty, just because when taken as a whole his work seems perfectly balanced between the two extremes; and there is even more to be said of him than this. These two great aims, great tendencies, had not yet extinguished the third that I have named. There was still something more desired in the way of artistic expression than the expression of beauty or of personal idiosyncrasies; the artist still desired to render a great general sentiment, and this sentiment still meant Christian feeling. But the desire was gradually fading. It is not very conspicuous even with Ghiberti or Donatello; with Luca, however, it is conspicuous, so conspicuous that we must rank it with his love of beauty and his love of physical truth, and say again that it is impossible to decide which is the strongest in his perfectly balanced art. Not only now and then like Donatello, not only here and there and chiefly in his earlier work, like Ghiberti, but always and everywhere, Luca is a distinctly, typically Christian sculptor. He is as Christian in his feeling as the fourteenth-century Gothicists, though he expresses that feeling in a very different way. It is not only that his technical resources are perfect while theirs are imperfect, it is not only that he cares so much more than they for beauty and for physical accuracy; his main ideal is quite different from theirs. He does not desire as they to tell stories, to point morals, to be dramatic and emotional, mystical and supersensual; he wishes simply to put the pure sentiment of Christianity, of faith and hope and gentle charity into all his work. He does it perfectly, and yet that work is almost Greek in its beauty of form, almost Donatellesque in its strict veracity. It seems to me that there is no Italian artist who equals him in this perfect combination of many qualities. One or two sculptors came after him who at times were exquisitely Christian, too, and possessed their art with equal mastery of hand. But there is much in the fact that they did come after him, and we cannot help seeing, too, that they lack something of his beautiful simplicity, his utter freedom from affectation, pose, self-consciousness. Compare, for instance, Matteo Civitali's well-known figure of "Faith" with one of Luca's figures, I care not which. You will feel, I am sure, the difference I have marked. And the very name I cite points out a change — a change in ideals and aims as great as that other which separates Luca from the dramatic, mystical Gothic age. His art is as frank, as real, as it is simple. He gives us madonnas and saints and angels that are realized as distinct human individualities; but the later art gives us typified abstractions, impersonal allegoric idealizations, which soon turn into half-pagan nullities, as meaningless to the spectator as artificial to their creators.

Nor do I think that there was any one in painting who is exactly what Luca is in sculpture. The development of the sister art was so much slower that when the brush had become perfectly skilful and free, as was Luca's chisel, Christian feeling had all but disappeared, or preserved a merely official and unvital life. A comparison of dates is interesting and instructive. Ghiberti and Donatello were twenty years older than Luca, yet their art had reached technical perfection. But Luca's own contemporaries of the brush were Paolo Ucello, Masaccio, Squarcione, and Giacomo, the eldest of the Bellinis. Filippo Lippi was twelve, Benozzo Gozcoli was twenty, Giovanni Bellini was twenty-six, and Mantegna was thirty years his junior. And fifty years later than he were still born painters whom we call "early" — Botticelli, Lorenzo di Cridi, Ghirlandjo, Signorelli, Francia, Carpaccio. Such dates tell strongly when we remember how quickly Christian feeling was fading before indifferentism or pagan sentiment. We may prefer these painters if we will to those who came in or after Raphael's generation. We may find a greater charm in the earlier work, and we cannot deny that even technically it is very noble; but it is certainly true that technically it is not perfect, had not that utter freedom in the use of its means which marks the apogee of a development. This freedom Ghiberti and Donatello and Luca did possess. If we consider the Renaissance movement as a whole, uniting all its branches, or if we consider it merely for its mood and temper, they belong to its earlier portion. But their own art as such is not "early"; it is technically complete. Their generation is the great typical generation of Renaissance sculpture; for the Sansovini and their fellows are already beginning the decline, are far less spontaneous, far less individual, far less Italian. They are giving at last an overweening importance to the Classic influence, and I do not think that their technique can be called more perfect. And Michael Angelo is an abnormal, isolated giant, typical of nothing whatever but himself. Luca's generation is the typical generation of Italian sculpture, Raphael's and Titian's are of Italian painting, and therefore it is not strange if in painting we find no such pure and powerful Christian sentiment as Luca's, expressed by a hand so entirely skilled as his.

M. G. van Rensselaer.

[1] This realistic tendency shows not alone in figure sculpture, but in all the ornament of early Renaissance architecture.

[2] For a charming and most suggestive criticism on the *technique* of Italian sculptors, I may point my readers to an article by Mr. Kenyon Cox in the *Century Magazine* for November, 1881.

A New Feature in Train-Despatching. — A French inventor has perfected an apparatus which enables railway despatchers — men who control by telegraph the movements of trains on the several divisions of the road — to see in a mirror the entire section under their charge. The apparatus consists of a sheet of opaque glass, on which the rails are indicated by horizontal lines and the stations by vertical ones, numbered. Little arrows, representing the trains, move along the horizontal lines. They are put in motion by aid of electricity, developed by the contact of metallic brushes attached to the locomotives with zinc bands placed along the rails. The train thus continually traces its trajectory on the glass indicator. The apparatus was exhibited a few weeks ago in Germany to a commission of Berlin scientists. While ingenious, it is said to be of not so much practical value as would at first appear. By the system now in use despatchers, knowing their divisions thoroughly, as they invariably do, can see the trains mentally as well as though they were shown in a mirror before them. —*Philadelphia Press.*

TEMPERED GLASS.

S^t WILFRED'S
at York

UNDER this title Mr. Frederick Siemens brought before the Applied Chemistry and Physics Section of the Society of Arts, on the 26th ult., one of his first applications of his radiation furnace described on page 576 of the last volume of *Engineering*. It will be remembered that in Mr. Siemens's account of his furnace stress was laid upon the fact that flame soils what it touches, and that therefore all materials requiring to be heated should be under the influence of radiant heat only, and in applying his system to glass furnaces, Mr. Siemens claims that if the bed of the furnace is always kept in good condition, either by the use of clay or sandstone, or tiles dusted over with talc powder, the surface of the glass will not be soiled, whilst the whole mass will be uniformly heated.

As regards cooling glass, the following principle is laid down by Mr. Siemens: "The cooling must be so regulated that at every instant of time the temperature of the article shall be uniform throughout." Under these circumstances there will be no internal tension or strain whatever, and there will consequently be no tendency to crack or break. Another way in which this principle may be stated is that the cooling shall take place not in proportion to the surface, but to the volume or specific heat of the glass. In carrying out this principle, three processes have been devised, known respectively as press-hardening, semi-hardening, and hard-casting.

Press-hardening is principally employed for articles made of sheet or plate glass, which may be either flat or bent into a variety of forms, the glass being either plain, decorated or enamelled. The glass is first cut in the ordinary way to the proposed shape and size, and is then heated until quite soft; as soon as it has attained the requisite temperature, it is placed in a press between cold metal plates, and cooled down with a rapidity which can be varied according to the degree of hardness that it is desired to give to the manufactured article. If the glass is to be very hard, the temperature is raised to a very high degree, and the glass is cooled very rapidly by the use of copper plates in the press. If a less degree of hardness is desired, the glass is raised to less intense temperature, and iron plates are used for conducting away the heat. Still lower degrees of hardness can be guaranteed by covering the plates with asbestos paper, or using clay slabs in the presses. Glass may be thus rendered so hard that the diamond will not touch it, and it cannot therefore be cut or bent after manufacture; it may, however, be polished, etched, and slightly ground; its strength is about eight times that of ordinary glass.

The temperature to which the glass has to be heated is far in excess of that of an ordinary annealing kiln, and it is owing to the high temperature employed that the glass can be bent and shaped, and also decorated and enamelled, during the process of hardening. In ordinary enamelling, the temperature not being very high, easily fusible enamels, such as borax, are alone available, whereas in this case the high temperature allows of the use of refractory enamels such as are employed for porcelain. While ordinary enamel can be scratched off the glass, and does not resist the action of acids or even of the atmosphere, the enamel on hardened glass is as indestructible as the glass itself.

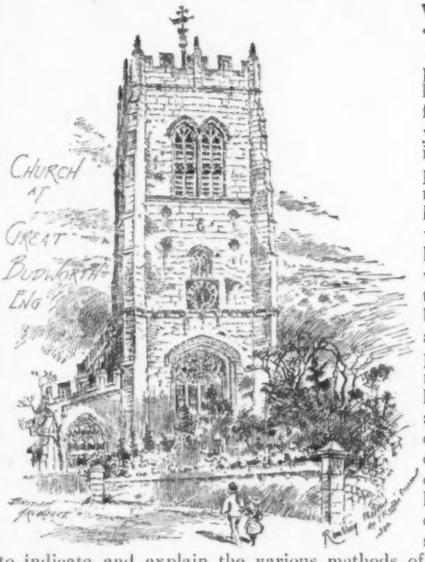
Articles made of semi-hardened glass are of forms to which presses cannot easily be applied, such as bottles, and are heated up in the radiation furnace to a temperature below that at which the glass alters its shape. When sufficiently heated, the glass is at once placed within a casing of sheet-iron, arranged with internal projecting ribs, so that the glass article is maintained in position and touched only at a few points; sometimes the casing with glass inside is heated in the furnace. The cooling is effected by placing the casing with the glass article inside in the open air. The process, like that of press-hardening, is only applicable to glass of nearly uniform thickness throughout; the strength of semi-hardened is three times that of similar glass unhardened.

Hard-casting is the third process to be described, its special value being that the glass may have almost any variety of thickness and form, and its strength increased threefold. The glass is melted in a continuous glass-melting furnace and then run into moulds. The process so far resembles that carried on in an iron foundry, but differs from it in a special material having to be employed instead of sand, and in the mould with glass inside it being heated and cooled together. The material used for moulding has to be chosen so as to have as nearly as possible the same conductivity and specific heat as glass. A variety of materials can be employed, these being pulverized and mixed in certain proportions, such as broken porcelain and glass-pots, metal filings and turnings, and such minerals as heavy spar and magnetic iron ore. The glass and the mould forming as it were one homogeneous body, the glass will cool without cracking, even if the cooling process is comparatively quick, which is quite necessary if hard glass is to be produced.

Some experiments were made at the meeting on the comparative strength of hard and ordinary glass, and there were exhibits of glass made by each of the three processes. Of the press-hardened glass there were some plates similar to those used for fitting up the chart-room on board H. M. S. *Inflexible*, which were ordered after a report of trials made on board H. M. S. *Gratton*, where the hardened glass withstood the concussion of the firing of heavy guns. There were also shown some military bottles made of semi-hardened glass, of which ten thousand have already been supplied, mainly to volunteer regiments in this country. Other exhibits included several samples of hard-cast glass, tramway rails and sleepers, floor-plates, grindstones, and a tuning-fork, each of the prongs of which had a sectional area of four square inches, and was fifteen inches in length. The clearness of the sound when this glass was struck was one of the best proofs of the homogeneous nature of the material of which it is formed.

Mr. Siemens reported that during the last eight years the manufacture of press-hardened glass, mainly of such goods as sign-boards with enamelled inscriptions, figures, and other ornaments, had increased from £600 to £7,000 annual value, whilst there appears to be no indication of a diminution in the rate of increase. The third process described is the one which he thinks possesses the largest commercial value, as he can produce hard-cast glass at 5 *s.* 6 *d.* per hundredweight, and is of opinion that at that price it will take the place of stone and porcelain, and even iron, for a number of applications. As yet it is only in the experimental stage. Mr. Siemens is now building works which will be completed in a couple of months, when he proposes to bring the matter again before the British public, and, if one reads his remarks aright, with the wish to establish works in this country. There will doubtless be little difficulty in carrying out his wishes in this respect, if he can prove, after a commercial test, that the value of his glass is such as his experimental trials have led him to believe. — *Engineering.*

PHOTOGRAPHY IN THE PRINTING-PRESS.[1] — I.



THE application of photography to the printing-press is now so nearly universal that I feel I may occupy your time this evening in describing processes which must be more or less technical and wearisome. I believe, however, I am warranted in saying that not a single book or picture, not a single illustrated paper or magazine, not a single catalogue or illustrated announcement is to-day produced without its aid, either directly or indirectly. In the course of what I have to say, I shall endeavor to indicate and explain the various methods of its applications to these purposes.

In the first place it will be well, in the fewest words, to sketch in outline the ordinary photographic method, as a proper starting-point. What we call a photograph is a picture produced by the action of light on certain of the salts of silver. If we brush the surface of a sheet of paper with a solution of nitrate of silver, it will blacken by exposure to light. This is photography, or writing by light, in its crudest form. By the use of suitable devices, this action is hastened, retarded, arrested. Before any practical use could be made of photography, this action of light was hastened, and a process was devised to develop an invisible image produced by the action of light on a film of silver. The results thus produced were named daguerreotypes, after their discoverer, Daguerre. We all know the beautiful pictures of this method, which, in some respects, have never been approached by later processes. But the pictures were all positives; that is to say, though a completed picture was obtained, there was only one of a kind, and if another was desired, you had to again photograph from the original object or sitter. Talbot made the next step by producing a negative, a picture which was not complete in itself, which involved another operation, printing, to produce the completed positive; but with this great advantage, that this second operation could be repeated as many times as you wished, without

[1] A lecture recently delivered before the Boston Young Men's Christian Union by Mr. Ernest Edwards.

going back to the original object or sitter. Paper was Talbot's vehicle for making negatives, but it was soon superseded by collodion. Collodion was introduced by an Englishman, Archer, in 1851, I think, and from its introduction up to within the last few years, collodion has held undisputed sway for the purpose of making negatives. Gelatine is now in the field as its opponent, and surely and rapidly is taking its place. Before many years, I predict that collodion photography will be one of the "lost arts."

Photography then, you see, speedily divided itself into two processes: first, making the matrix or negative from the object, and then printing the picture from the negative. Making the matrix or the negative is a necessary part and parcel, and the first step of all printing processes, past, present and to come; and practically a negative is the same for every process. The difference comes in the printing method. The pictures which to-day we call photographs, but which more properly ought to be called silver photographs, are produced by that darkening of the salts of silver under the action of light, of which we have spoken. This was the first process used; it became at once immensely popular, it has retained its popularity to this day, and is likely to continue to retain it. With the perfection that has been reached, it would be difficult, and indeed impossible to surpass the beautiful photographs that surround us in all directions. But silver photographs have serious objections; foremost of all, they fade. No matter what precautions we take to prolong their existence, no matter how carefully they are treated, sooner or later they will fade, just as surely as silver will tarnish. The carbon process, in which carbon or the pigments used in the arts are made, by a series of ingenious devices, to form the picture, was worked out to meet this difficulty. So far, and perhaps on account of increased difficulty of manipulation, the carbon process has not superseded silver printing, but in skilled hands the results are, I think, artistically superior. So far as I am aware, the carbon prints produced by Messrs. Allen & Rowell of this city are not excelled by any in the world. The platinotype is another process devised to remove the stigma of instability attaching to silver photographs. In this the salts of platinum — a metal which does not tarnish like silver — were substituted for the silver salts. This method, though used to a limited extent in certain directions, is not likely to become popular.

But though the carbon process, which, by the way, is best known under the name of autotype, removed one objection to silver photographs, there were other and more serious objections, to remove which have kept an army of experimenters and workers busy for the last twenty years. Besides the want of permanence, there was a continuous call for something that could be produced more quickly and cheaply, as well as something more permanent. The beauty and fidelity of the results produced by the youngest born sister of the arts could not be gainsayed, but their usefulness could be but limited till they took such shape that they could emanate from that greatest educator of all, the printing-press. In some shape or other that must be achieved, or the new art-science must stand still. It is my purpose to-night to show the success that has been achieved in this direction, and by what methods it has been reached.

I will remind you of my remark that "making the negative or matrix is a necessary part and parcel, and is the first step of all printing processes, past, present and to come, and that it is practically the same for every process." The experimentalists in the work of applying photography to the printing-press had, therefore, their first step taken. They started with the photographic negative. Two courses were now open to them: either they must devise new methods of printing, with new appliances, to suit the necessities of the new art, or the older printing methods must be employed and the new photographic elements be adapted to them. Both courses have been pursued, and two such groups of processes have resulted. In one group we have processes having their own methods of printing, such as woodburytype, albertype, heliotype, artotype, etc.; in another group we have photography applied to the various printing methods of lithography, typography, plate-printing, resulting in photo-lithography, photo-engraving, photo-gravure. Before describing, in detail, these two different groups of processes, we may explain one more step which is common to all of them. Besides the use of the photographic negative, and before their roads separate, all of them rely in common on the action of light on bichromatized gelatine. The action of light on silver under certain conditions is to blacken it, and make a silver photograph. The action of light on gelatine under certain conditions is to make it insoluble in water. Gelatine, in its ordinary condition, can be readily dissolved in water, but if we add to a watery solution of gelatine a portion of bichromate of potash, then dry and expose it to light, the light has produced an action on it, which makes it no longer soluble in water. So that when a negative is interposed between a sensitive sheet of gelatine and the light, and in this way certain portions are shielded from the light, those portions remain unaffected and in their normal condition, whilst where light has acted through the negative the gelatine is rendered insoluble. This action of light on bichromated gelatine under a negative, so as to obtain an insoluble image, is the second step, the use of the photographic negative being the first, which is common to all the processes in which photography is applied to the printing-press. At this point comes the division into the two groups, one consisting of woodburytype, heliotype, albertype, etc.; and the other including photo-lithography, photo-engraving and photo-gravure.

Taking the latter group first, photo-lithography properly takes precedence, as it is the oldest practical method of applying photography to the printing-press. Lithography, or the art of printing from stone, is based on the mutual repulsion of grease and water, and, as is well known, its discovery was accidental. An image is drawn on a peculiar kind of porous stone, with grease; the porous stone is sponged with water, which is absorbed where there is no grease. A greasy printing-ink is then rolled over the stone, which only attaches itself where there is grease, that is to say, to the greasy image. A portion of this greasy ink is transferred to paper by pressure, and we have a lithograph. The operation is repeated, either in a steam or hand press, as often as may be desired.

If now, first a photographic negative is taken, and next it is printed on bichromatized gelatine, the latter will become something like the counterpart of a lithographic stone. Parts of the gelatine, where the light has acted through the transparent parts of the negative, will be rendered insoluble in water; whilst those parts where the negative is opaque will have been shielded from the action of light and will continue soluble. But anything insoluble in water will not absorb water, and so is water-proof. Being water-proof, ceasing to have any affinity for water, grease readily attaches itself. On the other hand, the soluble parts have the reverse action: they absorb water and therefore refuse grease. So a greasy ink image may be formed on a surface of bichromatized gelatine in the same way as on a lithographic stone, but with this important difference: it has been produced entirely by photography instead of by hand. It is, of course, readily transferred on to stone from the gelatine, when the treatment of it is in all respects the same as if it had been drawn on stone. There is, however, one serious limitation to photo-lithography. A lithographic stone will either absorb water and refuse grease, or it will take grease and refuse water; there is no half-way, as in a photograph. A lithograph always consists of black (or some other colored) ink on a white (or some other colored) ground. Therefore, any subject to be photo-lithographed must have the same characteristics; and in order, also, to meet the requirements of photography, the subject must be in black lines or dots on a white ground. Where the subject to be reproduced has not these characteristics, either it must be redrawn specially for the purpose, or some of the other processes must be adopted.

The photo-lithographic process consists, then, in first making a negative from an original, in black on white, printing this negative on the surface of paper coated with bichromatized gelatine, producing a greasy ink image on the parts of the gelatine acted on by light, and transferring this greasy ink image to stone, which is subsequently treated by the ordinary lithographic methods. The applications of photo-lithography are very numerous and important. The whole of the illustrated portions of the *Official Gazette* of the Patent Office, including the types as well as the drawings of the patents themselves, are printed by this method, which is now being adopted for a similar purpose by the English Patent Office. It is largely used for illustrations in almost all departments in Washington, and it is the means of producing the illustrations in the New York *Graphic*, as well as in many class-journals, such as the *American Architect*, and it is probable that a majority of the maps and plans now in use are produced by its means. The process is economical, and in the case of large contracts exceedingly so. Some idea may be formed of its cost from the contract price at which the illustrated pages of the Patent Office *Gazette* are now being supplied. This price is at the rate of $6.37 for six thousand copies of a page, eight by eleven inches, including paper.

If, instead of transferring the greasy image obtained on bichromatized gelatine for photo-lithographic purposes to stone, it is transferred to zinc, we have on zinc a design which can be treated so as to resist the action of acid, which, however, will eat or etch away those portions of the surface of the zinc not protected by the design, leaving the design itself in relief, like a type. This enables us to print from it as if it were a type, that is, along with type, in an ordinary typographic printing-press. We thus have a process of photo-engraving, where a type-printing plate is obtained, first by obtaining a negative; from this negative an image in printing-ink on bichromatized gelatine; this image is then transferred to zinc, and the zinc surrounding the image etched away, leaving the image itself in relief. But bichromatized gelatine is used as well in another way, as a means of making photo-engraved plates. Gelatine in its normal condition is like sponge; it absorbs water and swells in absorbing it. You will remember that the action of light on bichromatized gelatine is to make it insoluble or water-proof. If it is water-proof it is obvious it can no longer absorb water, and therefore can no longer swell. So that if bichromatized gelatine, after the action of light through the negatives on it, is placed in water, the hardened part, that is, the image, does not swell, whilst the surrounding parts, protected from light as they have been, absorb water and swell up. Thus we have the counterpart of the image in relief, and exactly the reverse of what we want for a plate capable of printing with type, for the image is sunk instead of being in relief. It is unnecessary to describe the method of doing so here, but it is easy to see that an electrotype or stereotype obtained from this swelled gelatine intaglio gives us what we want for type-printing. It is this latter method of photo-engraving which is so largely used in producing book illustrations as a substitute for wood-engraving. There are but few illustrated books which do not contain examples of it, and even in the highest class magazines, such as *Harper's* and the *Century*, it can frequently be detected. This country is essentially the home of this process, and many large establishments are devoted especially to the production of this work. In photo-engraving, as in photo-lithography, the original must be

COPYRIGHTED 1885 JAMES R. OSGOOD & CO.

St. Etienne du Mont, Paris, France.

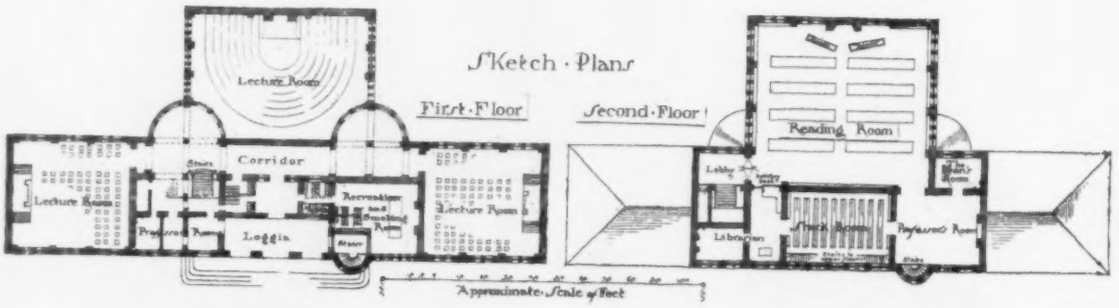
COPYRIGHTED 1885 JAMES R OSGOOD & CO

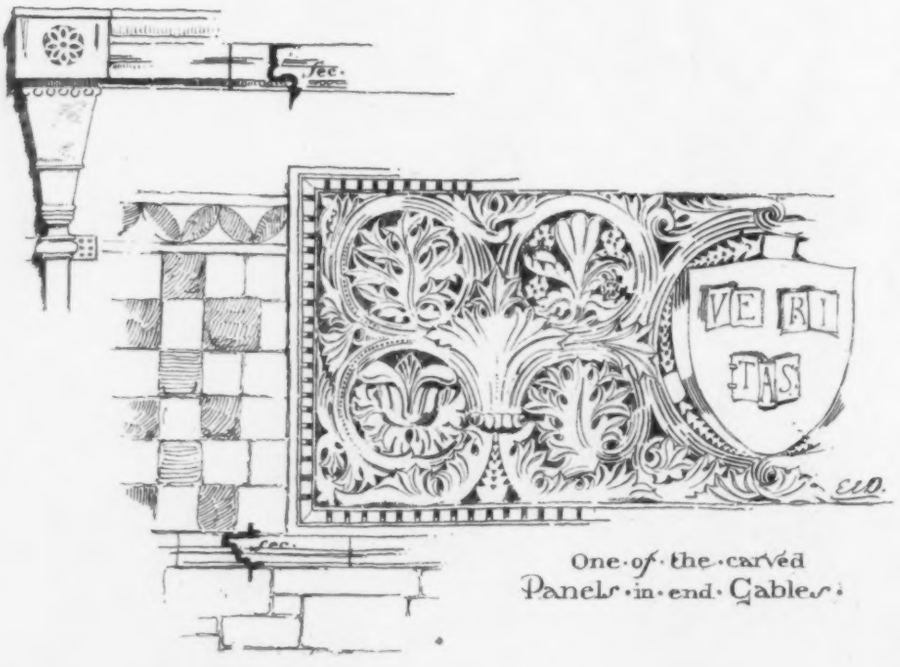
The Law School Harvard College

Mr. H.H. Richardson, Arch't: Cambridge, Brookline: Mass.

Fireplace in Reading Room

Sketch Plans

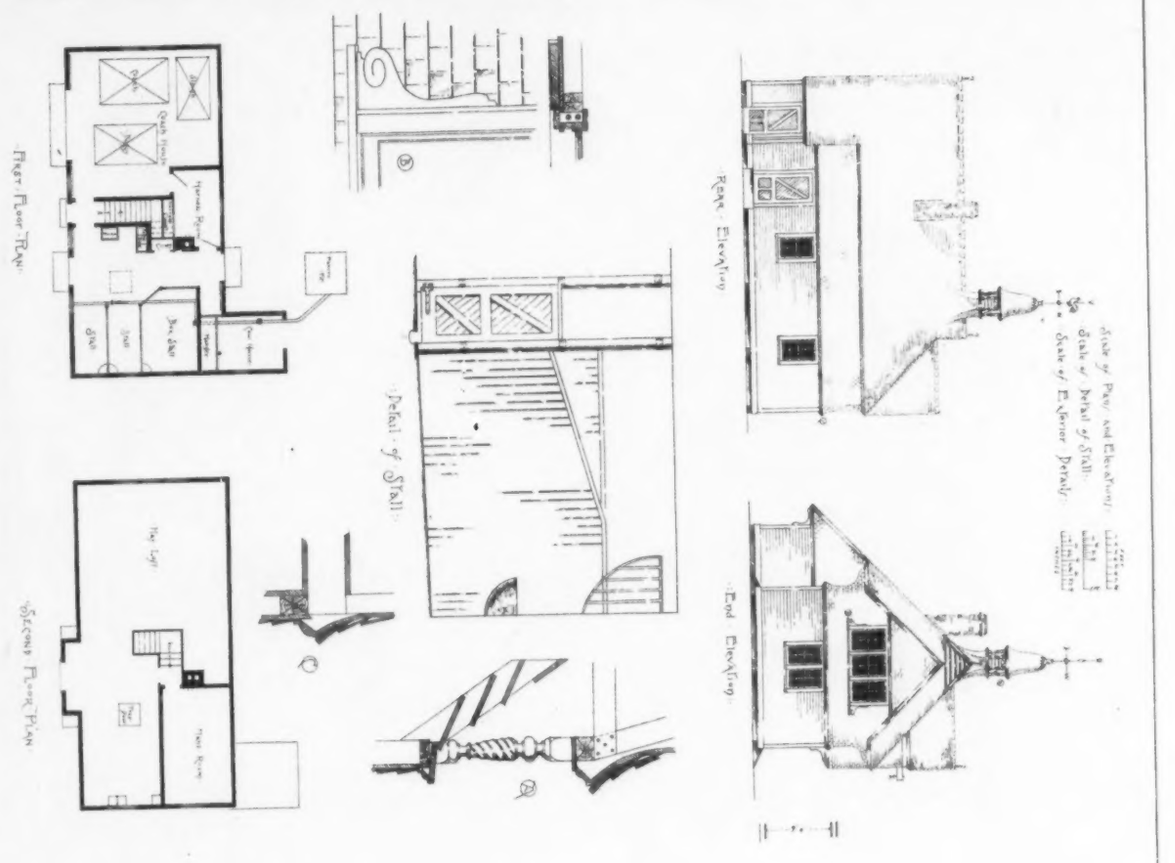




One of the carved Panels in end Gables.

HELIOTYPE PRINTING CO., BOSTON.

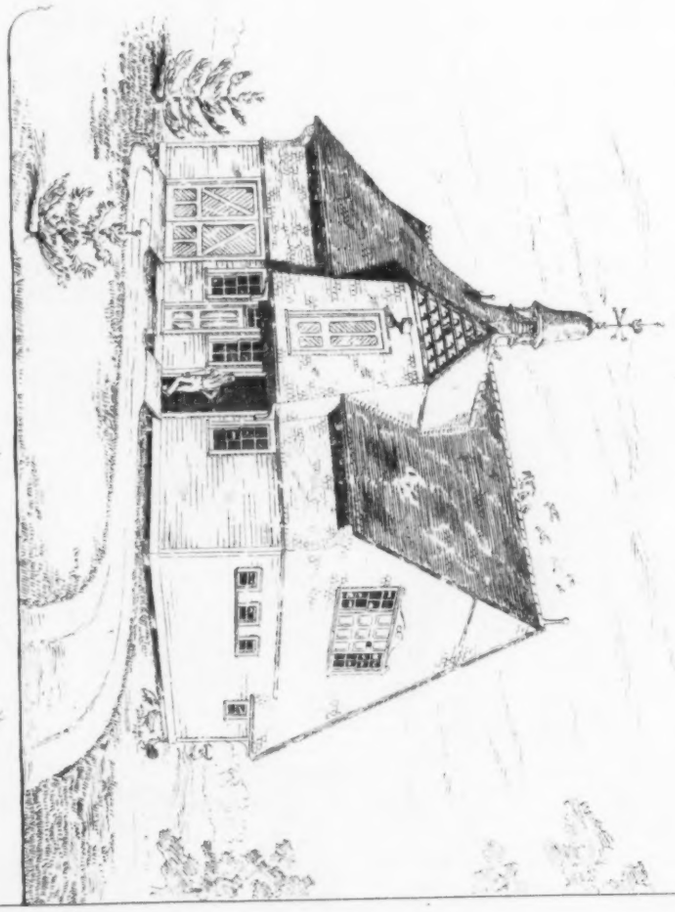
COPYRIGHTED 1885 JAMES R. OSGOOD & CO.



American Architect Competition

A Stable To Cost between $1000 and $1500

By "Pen"

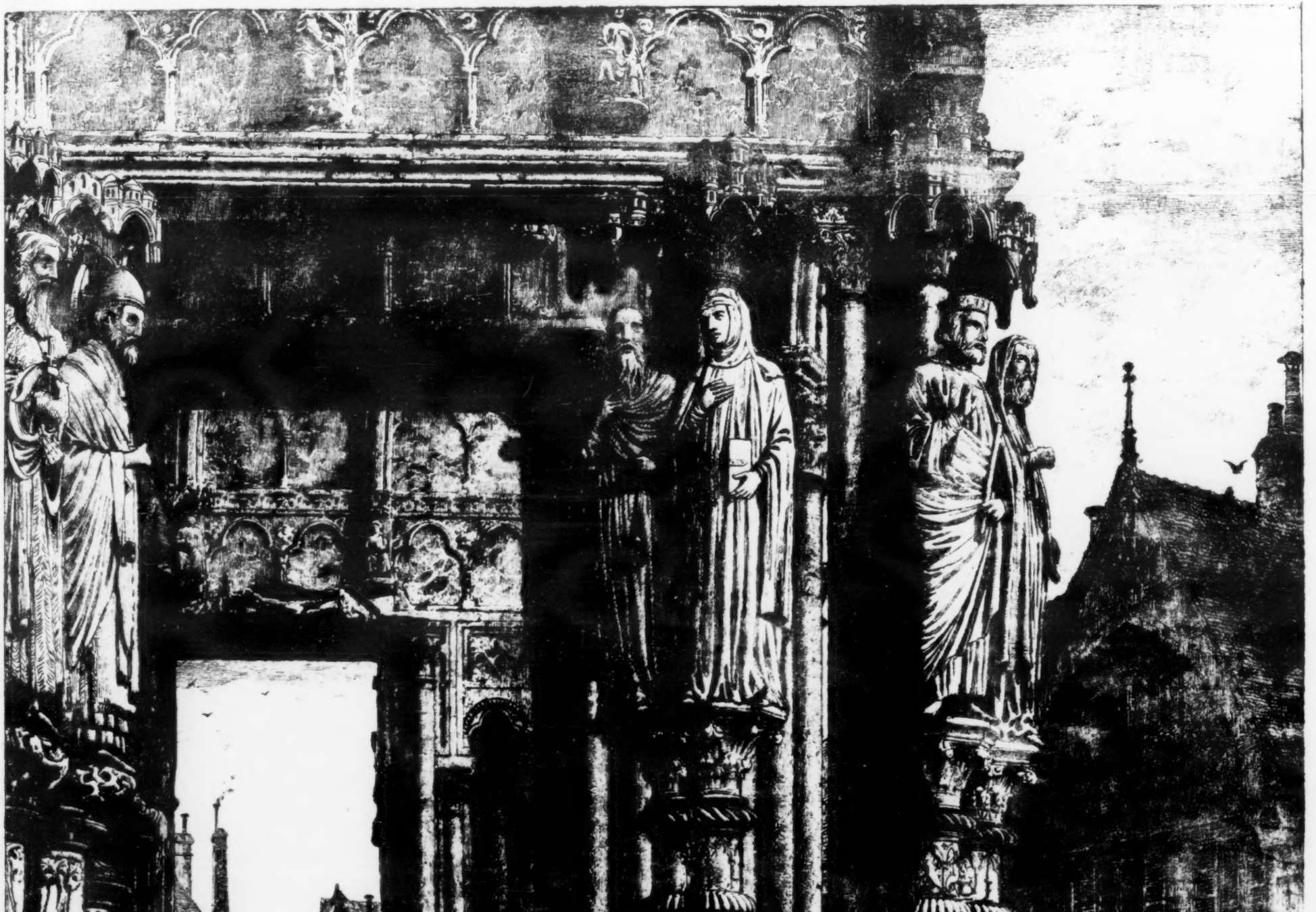


PERSPECTIVE

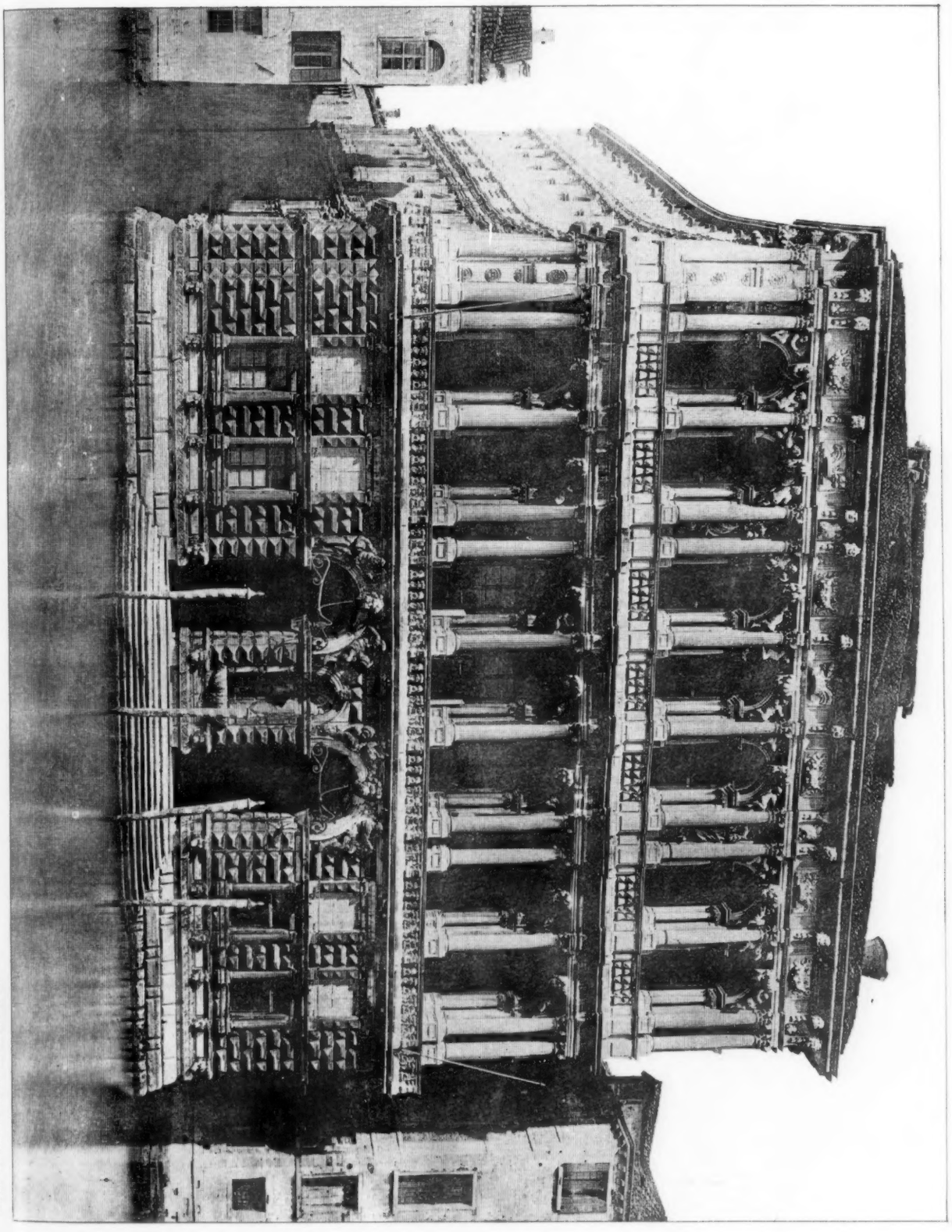
HELIOTYPE PRINTING CO., BOSTON.

Axel H. Haig

North Porch of Chatres Cat
Etche



COPYRIGHTED 1885 JAMES R. OSGOOD & CO



MICRO CARBON HELIOTYPE PRINTING CO. BOSTON

suitable for the purpose; that is, it must be in black lines or dots on a white ground.

Therefore a photograph, say a portrait, must be converted by drawing into black lines or dots, to be available for reproduction by photo-engraving. Great skill and considerable cost must be expended to produce this result, and after all, the charm of the photograph is almost inevitably lost.

THE ILLUSTRATIONS.

[*Contributors are requested to send with their drawings full and adequate descriptions of the buildings, including a statement of cost.*]

THE NORTH PORCH OF CHARTRES CATHEDRAL, AFTER AN ETCHING BY A. H. HAIG.

THE work of Mr. Haig is more purely architectural in feeling than that of any living etcher. Doubtless a prime reason for this lies in the fact that he studied architecture for a number of years. He furnished pen-and-ink drawings for reproduction by photo-lithography in the London architectural journals, and the writer recalls seeing at the Royal Academy in 1880 a fine colored drawing by him of a library at Kensington after a design by the late W. Burges. We find in Mr. Haig's etchings the qualities which such a training might naturally be expected to give: namely, accurate drawing and truthful effects obtained by the use of strong, well-understood lines. The thoroughly honest and able work of a man of talent, Mr. Haig's etching lacks, however, some of the higher qualities of the art. We miss the clear atmosphere of the brilliant Lalanne, the delicacy of Delauney, the bold light and shade and freedom in handling of Lhermitte, and the sense of color possessed by Jacquemart. It is, therefore, with some surprise we meet the fact that, on the whole, the etchings of Mr. Haig command a higher price to-day than those of any living man. His "Mont St. Michel," which is the largest plate he has etched (Haig usually produces work on a generous scale), and was published, we believe, at $60, has been sold for $250, and several of his other etchings have risen in value to two, three, or even four times their original price. This is, perhaps, partly accounted for by the fact that but a limited edition is printed (not over five hundred of any one, we understand), but still it is remarkable that prints of architectural subjects, which do not appeal strongly to the popular mind, should be so eagerly sought after. At all events, so it is, some of Haig's etchings being already "rare," and that within a few years only of their issue. Haig is decidedly the vogue, and time will tell whether the passion for his prints, like most fashions, will decline. To the writer of this it seems certain that it will, and the excellent work of this etcher find its proper place, — a high one, but not with the highest.

Mr. Haig, whose full name is Axel Herman Haig, was born in Ostergarn, Sweden, in 1835. He is mainly self-taught, having taken lessons in drawing as a lad at Wisby and then studied ship-building at Carlskrona and on the Clyde for several years. Thence he removed to London, where he has now resided for some years. He exhibits regularly at the Royal Academy, and won a third-class medal at the *Salon* of 1882. The names of his principal plates, in addition to those before mentioned, are "The Vesper Bell," "The Morning of the Festival," "The Quiet Hour," "The Pulpit of San Fermo Maggiore at Verona," "Peterborough Cathedral," "A Street in Seville," and "Seville Cathedral." He has also executed three other etchings illustrating the Cathedral of Chartres, one of which is an interior view, showing the aisles. Mr. Haig is said to be now engaged upon two plates of Westminster Abbey (an exterior and an interior view). The "North Porch of Chartres" is an admirable example of Haig's quality at its best.

Lowell's fine lines on Chartres porch will probably be new to many of our readers: —

> "I stood before the triple northern port,
> Where dedicated shapes of saints and kings,
> Stern faces bleared with immemorial watch,
> Looked down benignly grave and seemed to say, —
> '*Ye come and go incessant; we remain*
> *Safe in the hallowed quiets of the past;*
> *Be reverent, ye who flit and are forgot,*
> *Of faith so nobly realized as this.*'"

COMPETITIVE DESIGN FOR A BARN SUBMITTED BY "*Pen.*"

THE materials required for building the stable are supposed to be at a reasonably convenient distance from site. The stable is built on brick piers, run into the ground below frost line.

The size of timbers are: sills, 4″ x 10″; plates, posts and interties, 4″ x 6″; intermediate studding, set sixteen inches from centres, 2″ x 4″; first and second tier beams, twelve inches from centres, 2″ x 10″; roof-rafters, 2″ x 6″; hip and valley rafters, 2″ x 8″; ridge rafters, 2″ x 8″.

Double studs at all door and window openings. The first story will be covered on the outside with six-inch clapboards, and the second story and roof will be shingled. The inside on first story is to be ceiled with four-inch tongued, grooved and beaded ceiling-boards. Man's room will be lathed and plastered.

Most people keeping two horses generally require an extra stall in case of an emergency, therefore I have shown a box-stall.

Estimate of cost of building near Newark, N. J., as follows: —

Carpenter-work, including painting	$1,280.00
Mason-work	120.00
Architect's fee, at 5%	70.00
Total	$1,470.00

PALAZZO PESARO, VENICE.

THIS palace was built in the year 1679, by Baldassare Longhena, the architect of the church della Salute and of Palazzo Rezzonico, and it is the richest example of late Renaissance in Venice.

All that the wildest imagination of the seventeenth century could devise in contortion of figure and grotesqueness of human face and of bestial monster, is here displayed. Despite this grotesqueness of character, its detail has a value in itself quite extraordinary for the sculpture of this period. "The heads upon its foundation," says Mr. Ruskin, "have more genius in them than usual. Some of the mingled expressions of faces and grinning casques are very clever" ("*Stones of Venice*," III, 319), and the way in which the decoration is subdued to the severity of architectural purpose makes it the most powerful inspiration of a great artist, whose architecture was quite in harmony with the gorgeous pictures and poems of his time. Its grand masses of light and shade impress us from the first, and turning back we wonder at the solemn look which follows us as we float away, till, growing more and more tender, it becomes lost in the bluish mists of the distance. G. BONI.

AUSTIN HALL. — HARVARD COLLEGE LAW SCHOOL, CAMBRIDGE, MASS. MR. H. H. RICHARDSON, ARCHITECT, BROOKLINE, MASS.

[Gelatine Print, issued only with the Gelatine Edition.]

THIS building, erected by Mr. Edward Austin as a memorial to his brother Samuel, was finished last autumn after eighteen months' or so labor, and the expenditure of about $145,000. Built of Longmeadow stone from the Kibbe quarry, relieved with Ohio stone, the building does not look too new for its site, which is outside of the College Yard proper on one of the numerous little "greens" common in Cambridge. A few bits of bluestone in the spandrels of the entrance arches lend an astonishing amount of color to the main feature of the building — the entrance-porch.

FIREPLACE IN AUSTIN HALL, CAMBRIDGE, MASS. MR. H. H. RICHARDSON, ARCHITECT, BROOKLINE, MASS.

ST. ETIENNE DU MONT, PARIS, FRANCE.

ST. ETIENNE DU MONT, one of the most fascinating churches in the world, is situated in the Latin Quarter of Paris, and with its neighbors, the Panthéon and the Bibliothèque St. Geneviève, makes the most interesting group of buildings in Paris. One is never tired of admiring the way in which the Gothic feeling seems to pervade a Renaissance after-treatment that in most cases would be thought to be an architectural solecism. In some way the observer is led to feel the poetical perfection of the building without being allowed to criticise its parts. The choir-screen, reached by stone spiral stairs winding about the huge columns of the crossing, with other features, makes the interior no less fascinating than the exterior.

THE LATE LUDWIG BOHNSTEDT.

LUDWIG BOHNSTEDT, one of the most distinguished architects of Germany, died in January at Gotha, in his sixty-third year. He was the son of German parents settled at St. Petersburg, but studied in Berlin, perfecting himself in Italy. In 1851, when only twenty-nine years of age, he was appointed court architect at St. Petersburg, and seven years later Professor of Architecture in the Russian Academy of Fine Arts. While holding these positions, he built the Monastery of the Resurrection at St. Petersburg, and several splendid public buildings. In 1861 he migrated to Gotha, and soon gained a great reputation for the originality, completeness and beautiful details of his designs. In the first competition, in 1872, for the design for the Reichstag building to be erected in Berlin, he obtained the first prize. He also built the Cathedral of San Torquato, in Portugal.

THE *AMERICAN ARCHITECT* STABLE COMPETITION. — V.

THE JURY'S AWARD.

"*V. O. C.*" — Plan is fairly good, but with waste-room. Porch unnecessary, as is also the office; man's room of inconvenient shape. Entire *tourelle* treatment expensive and not particularly successful in design; seems detached from rest of building. Stalls should be separated from carriage-room in all stables that are to be used in the winter. General effect of building heavy; rendering hard and stiff.

"*Burns.*" — Plan good. Harness-room too large. Fireplace unnecessary. Exterior too high. Windows large. Roof over stable-room would not show in perspective. Rendering spotty. Details heavy.

"*Puck.*" — Stableman's room unnecessarily large and bay-window too much of a motive. Mass of main body of stable good. Ventilator too high. Rendering lacks clearness.

"*Asmodeus.*" — Plan a very bad one. No connection between

carriage-room and stable-room. Only way of getting to loft from stable-room is by going through harness-room and man's room; and water-closet, besides being unnecessary, should not open from harness-room. Stable covers altogether too much ground; could not by any possibility be built for $1,500. Exterior mass is picturesque, but somewhat too much cut up in man's-room corner. Details and rendering coarse.

"*The Square of the Circle.*" — Plan fairly good. Waste-room in stable-room. Elevation lacks balance. It would have been better to gable over end of carriage-room. Details very bad, especially the cresting and ventilator, twisted post and treatment over man's room gable. Rendering needs study.

"*Hope II.*" — Plan good. General mass good, except carrying the roof down over the porch. Ventilator unsuccessful. Details need refining. Rendering hard.

"*Immer vorwarts.*" — Plan good. Hostler's-room has very little head-room. Exterior mass simple. Balcony before hay-door would be much in the way. Details are coarse. General effect of building boxy. Rendering hard and stiff.

"*Jay Eye See.*" — Plan good. Mass lacks balance. It would have been better to use a gable instead of a dormer over carriage-room. Walls too high. Proportion of doors and windows too high. Rendering lacks shadow.

"*Rough on Rats.*" Plan good. Exterior projection, upon the upper part of a gambrel, for pigeons is not good. Hood over hay-door is not successful. Brick between studs about stable has practical advantages, but does not look well as shown. Rendering good.

"*Tom Pinch I.*" — Plan fairly good. Harness-room is inconvenient. As the exterior, the bay motive is especially unsuccessful, as it is roofed; it does not belong in character to the rest of the stable. Details are fairly good, especially the ventilator. Rendering good.

"*Vestigium nullum retorsum* [*sic*]." — Plan good. Exterior mass good. Eaves lack projection. Entrance-door should not cut up through belt. Ventilator boxy, with bad curve to roof. Rendering spotty.

"*Angular.*" — Brick first story is expensive. Plan is good. Carriage-room is shallow and with but slight room for carriages. Ventilator too large. Details of dormer good; of porch-posts poor. General mass good. Rendering needs study in free-hand work; is done too much with a T-square.

"*Polo.*" — Stable too large and outline of plan too much cut up. Kitchen, second staircase and apartment for hostler uncalled for. Entire front projection and gable waste-room. Exterior walls and roof too much cut up. Double ventilator unsuccessful. Truncated gable disagreeable — as it is in nine cases out of ten. Walls too high. Details good. Rendering labored.

"*Augean.*" — Harness-room inconvenient. Protecting frame outside of entrance-doors is neither necessary nor successful in design. Waste-room in feed and tool rooms. Man's room too large. Windows in man's room crowded too much up under gable. Ventilator too small and petty. Exterior mass good. Eaves should be stronger. Corbelling under man's-room bay not well drawn in perspective. Rendering good; a little scratchy.

"*Silence.*" — Carriage-room inconvenient in shape and size. Cow-stall should be separate. Feed-room unnecessary. Exterior roof cut up by windows in man's room. Hay-loft small. Break-in over manure-pit not agreeable. Details and rendering hard.

"*Try II.*" — Plan good. Corn-crib unnecessarily large; space had better be thrown into stable-room. Hostler's room too large. Exterior: the two different pitches of roof on sides and ends would be very disagreeable. The ventilator particularly would be anything but good in appearance. The cross-hatched shading in the rendering is bad.

"*Vie.*"—Plan good. Balcony a snow-trap and unnecessary. Scroll-work under the windows is not good; in fact none of the details are good. The louvres in roof of ventilator are unnecessary and bad. Walls are too high. Rendering hard.

"*Simplicity.*" — Should have stuck to his motto, cut up his walls and roof less, and left off all the peculiar and disagreeable treatment about the hay-door. The plan is good. Rendering scratchy.

"*Scotia.*" — Harness-room much too large. Mass of stable good. Panelling, with clapboards between, on gables is not good. Ventilator boxy. Rendering needs more free-hand work and less dependence on the T-square.

"*Student.*" — Plan good. Harness-room inconvenient. Too much space given up to hostlers in second story. Exterior mass simple. Ventilator would have been better if placed nearer the centre. Imitation open-timber work is not good. Rendering has the same vicious system of spotty groups of short lines that has been criticised before in one or two of the designs.

"*Convenience.*" — Much waste room in harness and feed rooms. Stable is simple and depends for its effect on its details, which are not sufficiently studied and refined to give it character. The flap dormer is not good, nor the head of the hay-door. Rendering is too much cross-hatched.

"*Midnight Worker.*" — Would only do for a summer stable. A winter stable needs to have the stall-room separated from the carriage-room. As a summer stable the plan is good, but with the man's room on the first floor, so much second floor is unnecessary. Exterior mass is simple and good. The windows are probably mill-sashes, and, in consequence, too high for their width. Details are simple. The eaves might be stronger and with more projection. The flat pitched roof on one side would have been better if kept the same pitch as the other roofs. Roofs of different pitches butting against each other are not agreeable. The rendering is careful.

"*Common Sense.*" — Plan is good. Truncated gables are not agreeable. Outside chimney does not look well. Details are hard and need study, especially at the ends of the verge-boards. General mass simple. Rendering mechanical.

"*Jockey.*" — Carriage-room of inconvenient shape. Harness-room should be near stable-room and is too large. Exterior mass is good, except ventilator, the roof of which is of particularly bad shape. Plastered pediment would have been better shingled. Rendering seems careless.

"*Utility.*" — Plan is good, but large. So much room for man is unnecessary. Long slope of stable-roof on rear would not be agreeable. Ventilator too high. Rendering labored.

"*Labor omnia vincet.*" — Plan good. Elevations and mass simple. Jig-sawed work in gable is not good, and the perspective of the ventilator is most peculiar. It would be next to impossible to get at the hay-chutes where shown on the second floor. The construction of the details and of the framing needs study. The arched head to main door is not good. The rendering looks young and untrained.

"*Jehu.*" — Stall-room should be separate from carriage-room in a winter stable. Harness-room too large. Exterior: truncated gable and window cutting through eaves disagreeable. Walls too high. Rendering scratchy; too much cross-hatching.

"*Perseverance.*" — Harness-room inconvenient and large. No man's room. Eaves should have been continuous. Stable-room windows too large. Details simple. Pediment over main door unnecessary. Rendering young and labored.

"*Equus sana* [*sic*]." —Plan is too large. Harness-room too large. Battened walls are not agreeable. Details need study. Rendering careful but labored.

"*Stability.*" — Plan good. In second story too much room devoted to man's quarters. General tendency of mass of building horizontal, and doors and windows perpendicular: as a consequence there is a disagreeable contrast. Rendering looks hurried and careless.

"*Draughtsman.*" — Harness-room is inconvenient. Coachman's room too large. Exterior is badly cut up, with all shapes and sizes of windows. Ventilator is too high. Rendering spotty.

"*Ingenuity is Genius in Trifles.*" — Plan good. Roof too much broken up. Treatment of gable verge-boards bad. Windows and doors too high for their width. Details too slight; lack mouldings. Rendering labored and too much cross-hatched.

"*Hard Times,*" "*Festina lente,*" "*Idle Hour.*"—All three of these designs have a marked perpendicular tendency. The pitches of roof and gables are too sharp, the windows and doors too high for their width, and the walls too high. This is less true of "*Idle Hour*" than of the other two.

"*Hard Times*" is *hors concours*, being received December 22. Plan is good. Harness-room too large. This design is weak in its detail, which resorts to jig-sawed work for effect, which is nearly always bad, unless done in thick pieces of hardwood, as in the Swiss chamfered and jig-sawed work. The front gable design is particularly bad. Rendering shows need of study in freehand drawing.

"*Festina lente.*" — Carriage-room small. Harness-room too large. Cow-stall should be separate. Battened work disagreeably cheap. Ventilator, set on plan at an angle, is bad; is too large and high. Eaves need moulding. Rendering careful and labored.

"*Idle Hour.*" — Plan good. Details simple. Eaves lack projection. Cresting should have been omitted. Rendering weak.

"*Cerberus.*" — Plan poor. Too much cut up for so small a stable, causing waste room in consequence. Two small carriage-rooms are not equal to one of double the superficial area in convenient space for carriages. This arrangement of rooms is symmetrical and architectural as far as it goes, but in this case has only succeeded in making the stable look like a chapel with nave, aisles and porch. Detail has been worked out elaborately, but is most commonplace and belongs to a type of work which fortunately is disappearing. Rendering is careful, but labored and too much cross-hatched.

"*Moss Rose.*" —A cow stall should not open from a carriage-room. The situation of the harness-room seems to have been selected for its remarkable inconvenience. With the doors placed as they are there is scarcely any available room for carriages in the carriage-room. The exterior mass is simple. The ventilator is not well shaped. The chimney would have been better left plain and carried inside. The arched head to the main door is not good. The windows are too high for their width. The rendering is painfully careful and worked over; lacks skill and power of rendering.

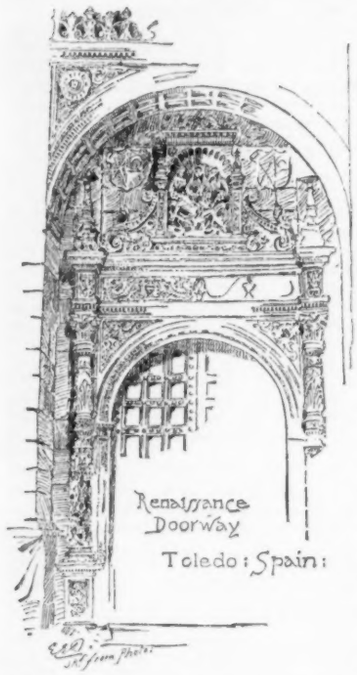
"*Norus Homo.*" — Plan is expensive. The man's room could have been in second story. It is always cheaper to build up from the ground than to spread out on it. Fireplaces are luxurious. The roof, especially in the rake mouldings, is badly cut up. The two-storied ventilator is not good in design. The rendering is painful in its fineness; it wants a sort of masculine virility that will make a good strong line or shadow somewhere, even if it isn't done in just the right place. Detail is poor.

"*Roberta*" is undoubtedly the poorest design sent in. "*Roberta*" has started from the outside and worked in, instead of starting with a good plan and working out, a fatal lack of a knowledge of the key-note to all good architecture. He has selected a design that strongly resembles a sketch in the *Croquis d'Architecture*, for a casino or

something of the sort, and tried to make it into a stable, not considering that a tower has nothing whatever to do with a small, cheap stable, where every inch of ground and every foot of height must have its purpose for being. As a natural result, neither his plan nor his elevation holds its own beside his competitors who have worked out the problem rationally. The plan has a pseudo-Italian look totally out of keeping with our climate or requirements. The details are commonplace, and the rendering alone shows that "*Roberta*" has facility in using his pen. The rendering of the perspective is free and good.

For the Jury, C. H. WALKER.

COMPARATIVE EFFICIENCIES OF STEAM AND HYDRAULIC ELEVATORS.



A CORRESPONDENT in the February number of *Mechanics* writes: The term hydraulic elevators is applied to elevators in which the actual motive power is furnished by an hydraulic motor, while the hydraulic pressure necessary for the operation of the motor is furnished by the natural head of the water. Where the pressure in street mains is sufficient to operate the motor, an artificial head need not be used, but in situations where this is not the case, an artificial head, produced by pumping water to a reservoir situated some distance above the hydraulic engine, or by pumping water directly into a pressure tank, from whence it is admitted to the motor, must be taken advantage of. This form of elevator is rapidly coming into favor, due principally to the more ready adjustment of the system over the ordinary hoisting engine, and also due to the fact that it is claimed to be more economical in steam consumption than the "steam elevator."

In order to fully understand the problem of the comparative efficiencies, we must consider first the theoretical efficiency of the hydraulic elevator as compared with the steam elevator. This question can be readily disposed of, as we find that in practice the hydraulic elevator descends by its own weight, while the steam elevator uses steam coming down as well as when going up; we therefore would naturally expect the hydraulic system to be more economical than the steam. This view is, however, somewhat modified by a consideration of the practical view of the case. We find that the efficiency of the hydraulic system is subject to the following efficiencies of its different members, viz.: the efficiency of the steam end of the pump, the efficiency of the water end of the pump, and also to the efficiency of the hydraulic cylinder. These apparent efficiencies are still further reduced by the "steam slip" of the pump, as I have called it, which is due to the fact that when the upper tank is full, or when the maximum pressure is attained in the pressure tank, the automatic throttle-valve, controlled either by a float in the upper or the lower tank, or by a pressure regulator, does not close absolutely tight, and consequently the pump continues its motion slowly. From a number of experiments made upon pumps running in this way, I have found that the efficiency of the pump-end under these conditions rarely equals ten per cent; or, in other words, the volume of water actually pumped is but ten per cent of the plunger displacement. This is due to the slow motion of the pump allowing the leaks, etc., to relieve the pressure gradually, thus never allowing the pressure to become great enough to lift the discharge-valve. Further than this, if steam cylinder drips are left open the loss due to these is considerably augmented. The pump is in operation almost continually, while the loss in the case of the steam elevator occurs only when the engine is making its periodical motions. The fact that frequently an elevator capable of hoisting ten or twelve persons is called upon to carry but half that number, or even less, in a trip, detracts seriously from the efficiency of an elevator, the hydraulic elevator being affected more seriously than that worked by steam, because the amount of water used per trip is constant, no matter what the load may be, thus merely increasing the speed of the elevator and not effecting a saving. In the steam engine the amount of steam is proportioned by the governor, which in turn is regulated by the speed of the elevator. The steam elevator, in its turn, is subject to the serious loss by initial condensation of the steam entering a cold cylinder, and also to the heavy loss of power consumed to operate the gearing. The efficiencies of both the hydraulic and steam systems are further reduced by the fact that the steam end of the pump in one case, the cylinder capacity in the other, is entirely too great for the work, a fact which every engineer will instantly see produces a serious loss. This is purposely done by the elevator builders, to allow for the variable steam pressure so common in our buildings. I am strongly inclined to the opinion that an hydraulic elevator system may be rendered as economical as a steam system, and trust that the ideas here thrown out may help to lead to an improvement much needed in this direction.

COMPETITIONS.

ITHACA, NEW YORK, March 17, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs,— Is it not worth while to point out the fallacy of "the key to the matter" which "W," with more zeal, perhaps, than discretion, has announced? He says "the key to the matter is that architecture concerns matters of taste, and matters of taste, rightly or wrongly, concern every one, the public quite as much as the architects." Which is of course true; but is it equally true (as "W" would have us infer) that "every one" is an *equally competent judge* in matters of "taste?" Quite as fallacious is "W's" comparison between architects and tailors, but for the sake of argument I will accept it, and suggest to him, as a practical test of its value, that he betake himself to some "well-known" tailor, and explaining to him certain original and radical ideas of his own, as to the cut and color of, we will say, a frock-coat, request him to make the garment. He will find that the tailor, if sufficiently "well known" will decline the honor, on the plea that he has a "well-known" reputation for taste and good judgment to sustain. Does "W" imagine that Worth defers in all respects to his fair clients' wishes, or at all, if they savor of bad "taste?"

I am equally inclined to doubt the soundness of "W's" conclusions with respect to the supposed legal competition. In the first place I feel sure that such competitions never take place, for the very good reason that the questions involved are recognized as being of too great importance to admit of any such loose method of solution. But even supposing the competition, does "W" think the client would take the responsibility of judging as to which might be the best solution offered; or, if not, would he not take legal advice in the matter, of a degree of skill and experience commensurate with the interests at stake? And if the legal adviser were competent to decide as to the relative merits of the various plans submitted in competition, would he not, either alone or in consultation with one or two other legal luminaries (experts in the questions involved) be equally competent to originate a satisfactory solution? And is not that, in fact, exactly what is done every day in the year, and solely for the reasons suggested?

The truth is, there are two kinds of competitions: honorable and dishonorable. In the first the professional advice offered will be paid for at its full value; in the second, the least possible return will be given, and in many cases the services of the competing "architects" will be *stolen*, under one plea or another. Of the first kind, the competition for the Cincinnati Chamber of Commerce is a recent and honorable example. The architects invited to take part in it will be well compensated, and I imagine the only reason why it has been instituted at all is that it is not as yet the custom for architects to be called together in consultation in important cases in the more normal way in which lawyers and physicians are. And, finally, permit me to say that while any effort to end the present disgraceful state of affairs in the matter of competitions is to be commended, I cannot but doubt the efficacy of the plan you are now so tardily fostering, for it seems to me to be at best but an artificial sort of protection. My own judgment in the matter is (though here not altogether clear) that the true solution may be reached when the architectural profession is raised from the position it now occupies to a level with the legal and medical professions, and that by distinct and *required* qualifications for practice, so that the *public* may be led to see the difference, of which we ourselves are fully cognizant (and to our sorrow) between a "well-known" and a "so-called" architect. CLEF.

BRIDGEPORT, CONN., March 18, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs,— We are continually in receipt of advertisements, invitations, etc., from all over the country respecting competitions, and we mail you a batch to-day, some of which are truly ridiculous; and it would seem to us that there cannot be any architects who are so low in the profession as to enter such competitions, the terms of some of which are really out of all reason; and as your journal is the representative of American architects and architecture we trust you will take hold of the matter with a view to protecting the same against the tricks so apparent in the wording of competition programmes now so extensively gotten up.

There must be a good reason for so much competition throughout the West, and we believe it is in a great measure brought on by the architects themselves, who court such competitions by solicitation and offering to make sketches on the "no cure no pay" basis, a practice which is very much to be deplored anywhere, and we see enough of it every day right in this State by members of the A. I. A. which we must say does not help that body or association.

The competition called for by the Board of Trade of Omaha, Neb., should be taken hold of by the architects of reputation of that city, and the Board of Trade helped to make it a perfectly proper and satisfactory competition, which we see no reason for not accomplishing.

Trusting to hear from you on the subject, we remain, dear sirs,

Yours very truly, PALLISER, PALLISER & CO.

WASHINGTON, D. C., March 23, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — I take the liberty of calling your attention to one point in the "Richmond" competition which you seem to have overlooked in your editorial of the 21st in relation to the conditions of a new programme. They require a building four sides or fronts of granite; four stories and basement in height; covering a lot 140′ x 248′; with elevators, heating, plumbing, etc. and all to be *fire-proof*, for the sum of $300,000.

Now, allowing low stories for the building, it must cost only about thirteen cents a cubic foot to come within the sum and conditions named. The cheapest government building of a fire-proof character that has been erected, I understand from reliable authority, cost thirty-six cents a cubic foot, and this was when labor and material were lower than they are at present. Government buildings, let to the lowest bidder, of the same character as the Richmond building is required to be by the "information" furnished, usually cost from forty to forty-five cents per cubic foot. Of course no one could conscientiously make plans for a building that would cost at least $800,000, in the vain hope that some bidder might be foolish enough to agree to build for $300,000. There should be either greater liberty as to character of building, or the price should be increased.

Yours truly, GLENN BROWN.

A QUESTION IN FIRE-PROOFING.

TENAFLY, N. J., March 11, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — As a builder I am constructing here, for the owner, a one-story brick fire-proof factory, for an extra-hazardous manufacturing business. The factory is forty feet by seventy feet, with concrete floor, and of a height from floor to ridge-pole of pitched roof of eighteen feet. A row of posts through the middle of building is to support the roof in centre. Will you kindly tell me what kind of posts would be best for this roof support? There have been suggested wooden posts, ten inches square, enclosed in wire netting, with coating of plaster-of-Paris, one inch thick. Also, a square box-post, of two-inch plank, say eight inches inside diameter, filled with Portland cement ("set," of course), and covered outside with similar plaster-of-Paris coating. I propose to protect under side of roof-rafters by a wire-net ceiling, with one inch of plaster-of-Paris.

Yours very truly, E.

[THE solid posts, covered with wire-cloth and plastered, would be far better than box-posts filled with cement. The protection of the roof with wire-lath and plaster is very well, and would be particularly good if the rafters could be made of heavy sticks, set five or six feet apart, and covered with plank instead of boarding, and the wire-cloth carried around the rafters, and on the underside of the planking, so as to have no air-space anywhere except the necessary interval between the wire and the wood, for obtaining a clinch to the mortar. Wire-cloth can now be had with corrugations for the nails, so as to need no wood furring-strips, and this would give still more security. It is not necessary to use plaster-of-Paris for the mortar; ordinary lime-mortar will do very well, as the clinch given by the wire-cloth prevents it from crumbling. If plaster-of-Paris or highly-gauged mortar is used, the wire-cloth should first be whitewashed with lime, to prevent the plaster-of-Paris from corroding it. Care should be taken to protect the eaves or cornices from fire which may reach them through the windows. — EDS. AMERICAN ARCHITECT.]

SIZE OF WATER-TANK.

GREENVILLE, S. C.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you in your next issue be so obliging as to inform me as to what size tank for supplying water to a water-closet and bath would be necessary if the tank is filled daily? Family consists of six or eight persons. Would it be more advisable that the tank be large enough for a week or even a fortnight?

Respectfully, E. B. RUTLEDGE.

[THERE are so many emergencies likely to arise that it is unsafe to depend upon a tank only large enough for a single day's supply. A tank holding a week's supply is only a reasonable provision to include in an estimate. A tank measuring sixty cubic feet would be as small as it would be safe to provide. — EDS. AMERICAN ARCHITECT.]

WHICH IS THE LARGEST BUILDING IN NEW ENGLAND?

BOSTON, March 7, 1885.

TO THE EDITORS OF THE AMERICAN ARCHITECT: —

Dear Sirs, — Will you kindly inform a reader of your paper as to the following:

1st. Which is the largest building in the New England States?

2d. Which is the largest in Boston? and please state whether it covers the most ground or is largest for room.

By publishing the above information you will confer a great favor and set at rest a dispute between a number of builders and others.

Yours respectfully, F. H. NIMMS.

NOTES AND CLIPPINGS.

AN INGENIOUS SWINDLE. — One day a Parisian, whose wits constituted his sole capital, saw an eligible plot of building land at the corner of two streets, and reflected that the man who built a house there would be a lucky fellow. Some twenty yards further away he noticed another eligible plot of building land covered with building materials. On inquiry he discovered that the corner plot belonged to a Breton nobleman, who had had losses on the Bourse, and was living economically in Bretagne to recuperate. The plot with the building materials on it had belonged to a celebrated doctor who died a couple of years ago, and about whose will an action has been pending for the last eighteen months before the courts of Auvergne. Our swindler, sure of not being disturbed for some time, at once went to a young architect, and got him to make the plans for a fine mansion at the corner. After having approved of the plans, he authorized the architect to make an agreement with a contractor and to use the materials on the other plot, which he said was also his. The work went merrily on, and the sharper brought a few old ladies, to whom he had sold shares in gold and silver mines in improbable regions, to admire it. At the sight of such splendid security they did not hesitate to advance him all the funds he asked for. Everything has an end here below. One day the Breton nobleman came to Paris and went to look at the land that want of means compelled him to leave unproductive. He was of course delighted at the agreeable surprise that met his gaze, and inquired of the builder who was the unknown benefactor to whom he owed it. The builder referred him to the architect, who referred him to the pseudo-owner, but the latter had not been home for many days. He was, in fact, in Mazas prison on account of some imprudent act he had committed in the neighborhood of the Bank of France. His affair, as the French say, was clear; nor did he attempt to deny it. Only during his trial he was seized with a fit of irrepressible laughter. On the judge reprimanding him, and asking him what he saw in the matter to make him laugh, he apologized, and said that he could not help laughing when he thought of the intricate maze of actions-at-law his building freak would cause. The series is indeed a long one, and has already begun. The contractor sues the architect, the architect the Breton nobleman, who maintains that whatever is on and under his land belongs to him; the Auvergnat heirs also sue the Breton for the materials, and the old ladies sue everybody else, pleading that the land, building and materials belong to them as security for the money advanced. Such is the substance of a story told by the Parisian correspondent of the *Manchester Evening News:*

ICE PALACES. — Ice is hardly to be classed as a building material, save among the Innuits, but the ice palaces erected at Montreal, at the winter carnival during the last three years show what can be accomplished with ice if the temperature is always below the freezing point of water. The ice palace is erected in the Dominion Square, at Montreal, being built out of blocks of ice 3 feet 4 inches square and 15 inches thick; 16,000 of these were used in this structure, which covers an elliptical area 120 feet by 160 feet. At each end are embattled towers 38 feet high, and at the sides, pairs of round towers extend to a height of 44 feet. Arched entrances between these towers lead to the interior. The main tower at the centre of the palace reaches to a height of 100 feet, and is connected to the other series of towers by walls. When the blocks of ice are brought from the Lachine Canal and trimmed to dimension, a little water is poured over the bed of the block and at the interstices at the sides until securely frozen in place. The interior of the palace is illuminated with electric lights, and at the storming of the palace, fireworks are thrown over the structure, both from within and from the square. The first ice palace built at Montreal, in January, 1883, had a roof made of boughs which was rendered solid by water thrown upon them, but for the last two years no attempt has been made at a roof. The ice decorations of this city for the carnival are not limited to the palace, for in the Champ de Mars, a structure, called from its Hindoo origin "the Condora," is built from 12,000 blocks of ice. In outline it is a stepped cone, 50 feet in diameter, 100 feet in height, and surmounted by a snow statue 24 feet in height, representing a Canadian with snow-shoes. In its construction the Condora is built of concentric walls increasing in height as the diameter decreases. It is approached from the interior, and during the times of celebration hundreds of the members of the snow-shoe clubs can stand on the tiers encircling the Condora, and add to the brilliancy by torches and fireworks. The architect of the Condora is Theodore Daoust, of Montreal. The third ice structure is the colossal statue of a lion modelled by Arthur Vincent, of Montreal, and situated in the Place d'Armes. The pedestal is 20 feet high and surrounded by four buttresses, the main portion being hollow and illuminated by electric lights, which impart a very fine effect at night. The lion was built up of snow and afterwards wetted, so that it is frozen into a hard mass. Many years ago a life-size statue of a lion was cut out of ice at Lubeck, by a German named Von Meinert. The only precedent of any similar ice palace is probably the one built on the banks of the Neva at St. Petersburg in 1740 for the Empress Anne. This was a smaller structure, covering an area of 18 feet by 56 feet, and measuring 21 feet to the top of the roof, but the published accounts of the elaboration of the ice ornaments suggest the possibility that

> Far and wide the tale was told,
> Like a snowball, growing as it rolled.

It is alleged that the ice window frames were colored to represent green marble, while the panes were formed of sheets of ice so thin as to form a perfect substitute for glass. The palace was guarded by six cannon with their carriages, all of ice. One-twelfth of the usual charge of powder — not ice this time — was used in this ordnance; and the penetration of the projectile was sufficient to pierce a two-inch board at 60 paces. An ice elephant with his mahout and several dolphins, without their Proserpine, projected fountains of lighted naphtha to a height of 24 feet. Fireplaces and dining-tables, dressing-rooms and baths, are included in the schedule of furnishing, but when the account further states that the drawing-room contained a timepiece with wheels of ice, it seems as if the description was not limited to frozen truth. — *Engineering.*

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.]

BUILDING PATENTS.

[Printed specifications of any patents here mentioned, together with full detail illustrations, may be obtained of the Commissioner of Patents, at Washington, for twenty-five cents.]

313,480. BRICK, TILE, DRAIN-PIPE, ETC. — Henry Dickson, Pittsburgh, Pa.

313,491. STONE-LIFTER. — Robert N. Gowell, Ashburnham, Mass.

313,492. VENTILATOR. — Charles E. Granniss, New Haven, Conn.

312,501. FIRE-PROOF BUILDING MATERIAL.—John C. Kerner, St. Louis, Mo.

313,503. FASTENING FOR MEETING-RAILS OF SASHES.—Edward O. Ladd, Everett, Mass.

313,506. METHOD OF ATTACHING SLATES TO ROOFS. — George Martin, Boston, Mass.

313,511. BALCONY AND FIRE-ESCAPE COMBINED.—Cleophas Monjeau, Middletown, O.

313,522. HARDENING AND COLORING SERPENTINE ROCK.—J. J. Pratt, Wakefield, Mass.

313,535. WOOD ORNAMENTATION. — Wm. H. Roystone, Corona, N. Y.

313,540. BENCH-PLANE.—Roscoe S. Sheldon, North Greenfield, Wis.

313,550. HYDRAULIC LIFT. — John S. Stevens and Charles G. Major, Battersea, County of Surrey, and Thos. W. Barber, Ulverston, County of Lancaster England.

313,559. ADJUSTABLE ROOF. — Louis D. Vogel, Boone, Iowa.

313,580. COMBINED SASH-FASTENER AND SASH-LIFT.—George L. Elliott, New York, N. Y.

313,590. HASP-LOCK.—Ephraim Hambujer, Detroit, Mich.

313,594. LATCH.—Samuel Ide, Medina, N. Y.

313,611. SMOKE-CONSUMING FURNACE. — Orel D. Orvis, New York, N. Y.

313,617. TOOL FOR MAKING BEADINGS OR MOULDINGS. — Lawrence V. Poole and Orlando E. Williams, Windsor, Vt.

313,620. GUTTER FOR SEWERS. — Gustavus W. Rader, New York, N. Y.

313,626. HAND-EASEL. — Harriet A. Sawyer, St. Louis, Mo.

313,638. SASH-FASTENER. — Nelse Wilson, Hutto, Tex.

313,643. STONE-SAWING MACHINE.—R. Lester Barney, Swanton, Vt.

313,674. WINDOW-BEAD FASTENER. — Edwin A. Johnson, Allegheny City, Pa.

313,675. FIREPLACE.—Rueben R. Jones, Sprague, Wash. Ter.

313,687. WINDOW-SASH PULL.— Henry B. Sargent, New Haven, Conn.

313,692. DOOR-KEY. — Thomas Taylor, Norwalk, Conn.

313,694. JOINER'S PLANE. — William Tidgewell, Middletown, Conn.

313,709. FIRE-ESCAPE.—Henry Chamberlain, Waupaca, Wis.

313,722. KNOB-ATTACHMENT. — John J. Gordon, Detroit, Mich.

313,723. LEVELING-INSTRUMENT. — Christian C. Götze, Cöthen, Germany.

313,724. AUTOMATIC FIRE-EXTINGUISHER. — Almon M. Granger, Medford, Mass.

313,739. AUGER-HANDLE.— William A. Ives, New Haven, Conn.

313,742. THRESHOLD.—Simon A. Kintner, Ney, O.

313,769. EAVES-TROUGH HANGER. — George Reznor, Mercer, Pa.

313,823. COMPOSITION FOR CURING PAVING-BLOCKS OR BRICKS.—Thomas A. Huguenin, Charleston, S. C.

313,842. DEVICE FOR PREVENTING ACCIDENTS IN ELEVATORS.—Marcus L. Wright, Newton, N. J.

SUMMARY OF THE WEEK.

Baltimore.

BUILDING PERMITS.—Since our last report twenty-seven permits have been granted, the more important of which are the following:—

F. S. & G. L. Brown, two-st'y brick machine-shop, 43′ x 90′, n e cor. Fort Ave. and Patapsco St.

Mary J. Lindall, etc., 3 three-st'y brick buildings, w s McKim St., n of Chase St.

G. W. Moke, Jr., 15 two-st'y brick buildings, e s Vincent Alley, n of Baltimore St.

Aug. Degenhart, 4 three-st'y brick buildings, s s Preston St., between Valley St. and Holland Alley.

Thos. H. Black, 2 two-st'y brick buildings, w s Holbrook St., s of Hoffman St.

J. W. Gilpin & Bro., one-st'y brick warehouse, 35′ x 100′, s s Fort Ave., between Webster and Boyle Sts.

Boston.

BUILDING PERMITS.— *Wood.* — *M St., No.* 144, dwell. and store, 25′ x 40′; Cabel Kimball, owner; Cabel Kimball, builder.

M St., Nos. 146-148, 2 dwells., 20′ x 31′; Cabel Kimball, owner; Cabel Kimball, builder.

East Seventh St., near H St., dwell., 20′ x 31′; John Hooton, owner; E. P. Power, builder.

Evans St., near Milton Ave., stable, 20′ x 34′; James Whitney, owner; Jacob Haddock, builder.

East Ninth St., No. 509, storage, 22′ x 40′; Lyman Locke, owner; Lyman Locke, builder.

Mabreon St., near Ashford St., stable, 18′ x 24′; Walter Connery, owner; Poore & Curry, builders.

Skinner St., near South St., dwell., 24′ x 31′; Mrs. Dame, owner; Geo. Dame, builder.

Allston St., near Moss Ave., dwell., 27′ x 30′; Ferdinand Morse, owner; C. F. Stillings, builder.

Coleridge St., near Short St., dwell., 22′ x 23′ 6″; Robert Coosbie, owner.

Saratoga St., near Austin Ave., dwell., 23′ x 30′; D. Atwood, owner.

Coleridge St., near Bryon St., dwell., 22′ x 23′; Robert Coosbie, owner.

Commercial St., near Dorchester Ave., dwell., 18′ x 42′; Charles E. Ricker, owner; Charles E. Ricker, builder.

Winslow St., No. 32, dwell., 23′ x 39′; Thomas Ginan, owner; Thomas Ginan, builder.

Brick.—Greenwich Park, Nos. 37-39, 2 dwells., 18′ 9″ x 41′; W. H. Smith, owner, W. H. Smith, builder.

Carlton St., dwell., 18′ 9″ x 41′; W. H. Smith, owner; W. H. Smith, builder.

West Greenwich Park, dwell., 41′ x 38′ 6″; W. H. Smith, owner; W. H. Smith, builder.

West Newton St., No. 263, apartment-house, 40′ x 45′; H. H. Fitch, owner; J. E. Potter, builder.

Commonwealth Ave., No. 206, dwell., 25′ x 69′ 6″; Mrs. Dennis Flagg, owner; Silas Merrill, builder.

Huntington Ave., No. 144, near West Newton St., apartment-house, 45′ x 60′; H. H. Fitch, owner; J. E. Potter, builder.

Brooklyn.

BUILDING PERMITS.—*Clason Ave., Nos.* 472 *and* 472 *a*, w s, 299′ n Putnam Ave., 2 three-st'y brick dwells., tin roofs, wooden cornices; cost, each, $5,000; owner, etc., J. J. Walker, 474 Clason Ave.

Bremen St., s e cor. Jefferson St., 3 three-st'y frame (brick-filled) stores and tenements, tin roofs; cost for all, $16,000; owner, etc., Joseph Frisse, 19 Ten Eyck St.

Park Ave., Nos. 751 *and* 753, n s, 62′ w Delmonico Pl., 2 two-st'y frame (brick-filled) dwells., tin roofs; cost, each, $4,500; owners, Joseph Merk and Joseph Auer, cor. Delmonico Pl. and Park Ave.; architect, Th. Engelhardt; builders, Val. Bruchhaeuser and Joseph Frisse.

Park Ave., No. 691, n s, 275′ w Tompkins Ave., three-st'y frame store and tenement, tin roof; cost, $4,000; owner and builder, John Elch, on premises; architect, Th. Engelhardt.

Bushwick Ave., Nos. 565 *and* 567, n s cor. Troutman St., 5 three-st'y frame stores and tenements, tin roofs; total cost, $25,000; owner, architect and builder, Jos. Frisse, 19 Ten Eyck St.

Graham Ave., n s, cor. Siegel St., three-st'y frame tenement, tin roof; cost, $3,000; owner and builder, Christian Bott, 92 Humboldt St.; architect, Th. Engelhardt.

Graham Ave., n e cor. Siegel St., four-st'y frame store and tenement, tin roof; cost, $7,500; owner, architect and builder, same as last.

Lincoln Pl., Nos. 129-137, n s, 225′ w Seventh Ave., 5 three-st'y dwells., tin roofs; cost, each, $9,000; owner and builder, Wm. Gubbins, 20 Seventh Ave.; architect, C. Werner.

Monroe St., No. 642, s s, 372′ 6″ e Stuyvesant Ave., 3 two-st'y brick dwells., tin roofs; cost, each, $3,500; owner and builder, Cornelius King, 531 Clason Ave.; architect, Geo. I. Chappell & Co.

Evergreen Ave., w s, 25′ 6″ n Woodbine St., two-st'y frame (brick-filled) dwell., tin roof; cost, $3,000; owner, M. D. Booth, Evergreen Ave. and Woodbine St.; architects and builders, Simpson & Lowe.

Eighth St., n s, 350′ e Seventh Ave., 8 two-st'y brown-stone dwells., tin and wooden roofs; cost, each, $5,000; owner, Charles Long, 450 Ninth St.; builder, J. F. Wood.

Twenty-first St., Nos. 153 *and* 155, n s, 185′ w Fourth Ave., 2 four-st'y frame tenements, tin roofs; cost, each, $4,000; owner, M. E. Conlon, 117 Albany Ave.; architect and builder, J. E. Conlon.

Quincy St., s s, 250′ w Reid Ave., two-st'y basement and attic brick dwell., tin and metal roof; cost, $5,500; owner and builder, Samuel Post, 815 Van Buren St.; architect, H. Vollweiler.

Quincy St., s s, 270′ w Reid Ave., 10 two-st'y brick dwells., tin roofs, iron cornices; cost, each, $5,500; owner, architect and builder, same as last.

Hudson Ave., w s, 190′ n Myrtle Ave., three-st'y brick tenement, gravel roof, wooden cornice; cost, $3,500; owner, Jos. B. Durfey, 158 Park Pl.; architect, Charles Werner; builders, L. MacNaughton and John Prosser.

Quincy St., n s, 200′ w Sumner Ave., 5 two-st'y brown-stone dwells., tin roofs; cost, each, $5,000; owner, Wm. Johnstone, 224 St. Johns Pl.; architect, I. D. Reynolds.

Bergen St., s s, 125′ e Nevins St., four-st'y brick tenement and one-st'y brick stable, tin roof; total cost, $10,000; owner, John Harvey, 627 East Sixteenth St., New York; architect, I. D. Reynolds; builder, O. Nolan.

Linden St., n s, 200′ w Bushwick Ave., 4 two-st'y brick dwells., tin roofs; cost, each, $4,000; owner, S. M. Meeker, 64 Broadway; architect, E. F. Gaylor; builder, J. Rueger.

Van Cott Ave., or *Fifth St.*, s s, 156′ 6″ e Union Ave., one-st'y brick smelting-works, tin roof; cost, $4,000; owner, D. Culhane, 87 Fourth St.; architect, A. O. Hoddick.

Marion St., n e cor. Howard Ave., 4 two-st'y frame dwells., brick-filled; cost, each, $2,500; owner and architect, Augustus B. Pettit, 283 Chauncey St.

Sixth Ave., s w cor. Prospect Ave., 10 three-st'y frame tenements, tin roofs, iron and brick cornices; cost, average, $3,500; owner, architect and builder, James H. Darrow, 490 Eighth Ave.

Halsey St., n s, 178′ 6″ w Broadway, three-st'y brick car-house and stable, gravel roof; cost, $35,000; owners, Brooklyn City R. R., 10 Fulton St.; architect, A. W. Dickie.

Manhattan Ave., No. 215, four-st'y brick store and tenement, tin roof, iron cornice; cost, $9,000; owner, W. Heinrichs, 122 Franklin St.; architect, H. Vollweiler.

Vernon Ave., n s, 40′ w Sumner Ave., 2 two-st'y brown-stone dwells., tin roofs; cost, $4,500 each; owner, Adela Loughi, Willoughby Ave., cor. Sumner Ave.; architect and builder, A. Miller.

Garden St., e s, *No.* 25, three-st'y frame (brick-filled) tenement, tin roof; cost, $4,000; owner, Martin Stumph, 245 Stanton St., New York; architect, H. Vollweiler.

Frost St., No. 189, n s, 50′ w Humboldt St., three-st'y frame tenement, tin roof; cost, $4,000; owner, John H. McKenna, 106 Skillman Ave.; architects and carpenters, Sammis & Bedford; masons, Doyle & Brazil.

Johnson St., Nos. 240 *and* 244, s s, 40′ w Raymond St., 3 three-st'y brick tenements, tin roofs; total cost, $10,000; owner and builder, Peter Barrett, 246 Johnson St.; architect, J. M. Farrell.

Floyd St., No. 129, three-st'y frame (brick-filled tenement, tin roof; cost, $3,000; owner, Mrs. M. Mullen, 131 Floyd St.; architect, C. F. Eisenach.

Montague St., n s, 81′ e Hicks St., seven-st'y apartment-house, mansard, slate and metal roof; cost, $55,000; owner, W. Zeigler; architects, Parfitt Bros.; superintendent of construction, W. C. Bush.

Montague St., n s, about 157′ e Hicks St., 2 seven-st'y apartment-houses; mansard, slate and metal roofs; total cost, $140,000; owner, Henry Weil; architect, etc., same as last.

Quincy St., n s, 225′ e Sumner Ave., 6 three-st'y brown-stone dwells., tin roofs; cost, each, $5,000; owner, Wm. Godfrey, 348 Monroe St.

Maujer St., n s, 125′ e Graham Ave., 3 four-st'y frame (brick-filled) stores and dwells., tin roofs; cost each, $4,000; owner and builder, Wm. Young, 290 Devoe St.

Grand St., No. 566, 75′ w Humboldt St., four-st'y brick store and tenement, tin roof; cost, $6,000; owner and architect, Phillip Light; builders, Ulrich Maurer and Michael Metzen.

Butler St., n s, 280′ w Bond St., three-st'y brick tenement, tin roof; cost, $4,000; owner, Mary Lynch, 604 Carroll St.; architect, I. D. Reynolds.

Jackson St., No. 110, s s, 125′ w Ewen St., three-st'y frame (brick-filled) tenement, tin roof; cost, $4,500; owner, Jacob Zermann, on premises; architect and builder, J. J. Smith.

Middleton St., n s, 100′ w Harrison Ave., three-st'y frame (brick-filled) tenement, tin roof; cost, $4,000; owner and builder, F. Mossetter, Harrison Ave., cor. Middleton St.; architect, Th. Engelhardt.

Humboldt St., Nos. 75, 77, 79 *and* 81, n w cor. Moore St., 4 three-st'y frame (brick-filled) stores and tenements, tin roofs; cost, each, $4,000; owner and builder, Christian Bott, 92 Humboldt St.; architect, Th. Engelhardt.

Atlantic Ave., s s, 391′ 4″ e Utica Ave., 8 two-st'y frame (brick-filled) dwells., gravel roofs; cost, each, $1,800; owner, Thomas Quinn, Franklin Ave. and Butler St.; architect, Amzi Hill; builders, W. S. Montgomery and D. Smith.

Putnam Ave., n s, 295′ e Tompkins Ave., 5 two-st'y and three-st'y in rear brown-stone dwells., tin roofs; cost, each, $5,500; owner, etc., Arthur Taylor, 329 Herkimer St.

ALTERATIONS. — *Broadway*, s e cor. Third St., new store-fronts, etc.; cost, $4,000; owner, James L. Truslow, 43 Broadway; architect, E. F. Gaylor; builders, Jenkins & Gillies.

Broadway, No. 1227, add two stories; cost, $3,000; owner, F. Graeber, on premises; architect, F. Holmberg; builder, not selected.

Chicago.

BUILDING PERMITS. — J. Rivers, three-st'y flats, 704 Eighteenth St.; cost, $3,500.

J. Sokup, three-st'y store, 1228 Milwaukee Ave.; cost, 13,000; architects, Schaub & Berlin.

C. Kahler, three-st'y store and dwell., 478 Ogden Ave.; cost, $6,000.

M. McNellis, two-st'y dwell., Loomis St.; cost, $4,000.

H. H. Gage, two-st'y store, 242 Lake St.; cost, $4,000.

Mrs. S. Anderson, two-st'y store and dwell., 2944 Wentworth Ave.; cost, $4,000.

J. B. Whitmore, two-st'y dwell., 969 Central Park Ave.; cost, $2,500.

B. Machowski, two-st'y dwell., 413 Seventeenth St.; cost, $2,800.

Ed. Lehman, 2 three-st'y store and dwell., 487-489 Ogden Ave.; cost, $8,000; architects, R. Ray, Jr. and Wm. Drake.

F. B. Clark, 4 three-st'y store and dwells., 876-878 West Polk St.; cost, $14,000; architect, R. Ray, Jr.

H. Sortman, three-st'y dwell., 200 North Green St.; cost, $3,500; architect, Wm. Drake.

M. Hickman, two-st'y flats, 15 Warren Ave.; cost, $5,000; architect, W. Strippleman.

J. Pietsch, two-st'y flats, 751 Jefferson St.; cost, $3,000.

S. Blaisdell, three-st'y stores and dwells., 436 Ogden Ave.; cost, $5,500; architects, Edbrooke & Burnham; builder, W. P. Fitzpatrick.

T. Davies, three-st'y store and dwell., 413 Ogden Ave.; cost, $4,500; architect, R. Ray, Jr.

T. Pepper, three-st'y store and dwell., 3204 South Robey St.; cost, $3,000.

A. B. Peck, three-st'y store and dwell., Chicago Ave.; cost, $15,000; architect, J. Addison.

Mrs. L. M. Hopkins, two-st'y flats, 488 Hermitage Ave.; cost, $3,500.

Lauthmann & Rosenbaum, 2 three-st'y store and dwell., 238-240 Division St.; cost, $12,000.

J. W. Odell, two-st'y barn; cost, $2,500.

C. C. Wiedling, two-st'y store and dwell., 241 West Forth Ave.; cost, $7,000; architects, Schaub & Berlin; builders, Eich & Otto.

Mrs. George, two-st'y dwell., 501 Ogden Ave.; cost, $2,700.

O. Coyne, four-st'y store and dwell., 923 Blue Island Ave.; cost, $8,000; architect, R. B. Lawrence.

J. Campbell, 2 basements, 152-154 North Green St.; cost, $3,000.

The Board of Education, three-st'y school-house, Ashland and Waubansia Aves.; cost, $40,000; architect, J. J. Flanders; builder, J. Oleson.

Cincinnati.

STORES.—Mr. J. M. Rawson is to build on the s w cor. of Sixth and Elm Sts., a six st'y building for stores. The upper floors being arranged so they can be

divided into offices. The lot is 90′ on Elm St., and 123′ on Sixth St.; cost not yet estimated; architect, Jas. W. McLaughlin.

Correction.—A statement published in a contemporary journal that Mr. McLaughlin was preparing plans for a new building on the cor. of Fifth and Vine Sts., for the Este estate is denied by Mr. McLaughlin. There was some talk of building on the site, but the matter has been dropped.

Building Permits. — Jno. H. Brockman, three-and-one-half-st'y brick dwell., Logan St.; cost, $4,200.

Kirk & Co., two-st'y brick dwell., s s Third St., bet. Plum and Central Aves.; cost, $4,000.

B. Thoman, four-st'y dwell., bet. Woodward St. and Broadway; cost, $2,700.

Peter Motch, three-st'y brick dwell., Camp Washington; cost, $4,000.

Mrs. E. H. Camp, two-st'y brick dwell., 217-219 Plum St.; cost, $3,000.

David Rahl, three-st'y brick dwell., Race St., bet. Twelfth and Thirteenth Sts.; cost, $3,500.

James Hunt, two-st'y brick dwell., Elm St., near Eighth St.; cost, $3,500.

C. C. Rendigs, four-st'y brick dwell., Broadway and Abigail St.; cost, $5,500.

P. Steinbrecker, two-and-one-half-st'y brick dwell., bet. Kenton and Wilken Sts.; cost, $2,800.

Stephenson Estate, four-st'y brick dwell., Clinton St., near Baymiller; cost, $7,800.

Peacock Bros., to repair house, 59-61 Elm St.; cost, $3,700.

T. Mulhvihill, two-st'y brick dwell., 222 Sycamore St.; cost, $3,000;

Jno. Matre, four-st'y brick dwell., n e cor. McMicken St.; cost, $9,000.

Wm. Scully, two-and-one-half-st'y brick dwell., Calhoun St.; cost, $4,000.

Mrs. Kirby, 3 five-st'y brick dwells., McMicken Ave.; cost, $9,000.

Jno. H. Fauger, repairs three-st'y brick dwell., Plum St.; cost, $8,000.

U. Herterbrink, four-st'y brick dwell., n s Elm St.; cost, $10,000.

E. Berger, three-and-one-half-st'y brick dwell., Hopkins St.; cost, $3,000.

Este Estate, remodel front, 135 Main St.; cost, 2,000.

Jno. Dinkelbihler, three-st'y brick dwell., s e cor. Ancord St.; cost, $8,000.

J. D. Moore, 2 four-st'y brick dwells., Court St.; cost, $6,000.

Sam. Taft, three-st'y brick dwell., Central Ave., near Third St.; cost, $5,000.

Woodward & Cleckler, two-st'y frame dwell., s s Warner St.; cost, $2,000.

J. Hoeffie, three-st'y brick dwell., Calhoun St.; cost, $7,000.

L. B. Harrison, five-st'y brick dwell., w s Race St.; $10,000.

Geo. Hutink, two-st'y brick dwell., w s Madison St.; $3,500.

Trustees First Presbyterian Church, chapel, Kibby St.; cost, $4,500.

R. Wooley, Jr., two-and-one-half-st'y brick dwell., Crown St.; cost, $12,000.

P. Windman, two-st'y brick dwell., 840 Vine St.; cost, $5,000.

C. Sahlfield, five-st'y brick dwell., 479 Main St., cost, 7,600.

C. Raner, two-st'y brick dwell., n s Euclid St., near Boone St.; cost, $2,200.

G. Henzerling, three-st'y brick dwell., w s Denman St.; cost, $3,900.

Mrs. Zehler, two-and-one-half-st'y brick dwell., n s Vine St., w of Ohio Ave.; cost, $5,000.

F. Weimer to build three-st'y brick dwell., Cumminsville; cost, $2,100.

Repairs and additions, $24,330.

Total permits to date, 103.

Total amount to date, $320,000.

New York.

Factory.—On the w s of Tenth Ave., from One Hundred and Fifty-first St. to One Hundred and Fifty-second St., three-st'y silk-factory, 100′ x 209′, is to be built for Messrs. Joseph Loth & Co., at a cost of $100,000, from plans of Messrs. Hugo Kafka & Co.

Houses.—Mr. C. O'D. Iselin will have a residence, 25′ x 90′, built on the n s of Fifty-second St., 175′ e of Fifth Ave., at a cost of $50,000, from plans of Richard M. Hunt.

Six three-st'y and basement brick and brownstone dwells., 17′ x 50′ each, are to be built on the n s of Ninety-first St., w of Lexington Ave., at a cost of about $60,000, from plans of Messrs. Schwarzmann & Buchmann.

Office-Building. — The Astor Estate have ordered plans to be prepared for the enlargement of their Broadway building, now being erected. The extension will occupy the lots No. 3 and 5 Pine Street and No. 6 Wall Street. The cost of the improvement will be $200,000; Mr. Wm. Schickel is the architect.

Store. — On the n w cor. of Third Ave. and Fifty-ninth St., five-st'y basement and sub-cellar building, 100′ x 145′, is to be built for Messrs. Bloomingdale Bros., at a cost of $160,000, from plans of Messrs. Schwarzmann & Buchmann.

Building Permits. — *Fourth Ave.*, e s, 65′ 1″ s One Hundred and Tenth St., four-st'y brick dwell. and workshop, gravel roof; cost, $7,800; owner, Denis W. O'Halleran, 405 East One Hundred and Sixteenth St.; architect, C. Baxter.

Lexington Ave., s e cor. Eighty-eighth St., five-st'y brick tenement, tin roof; cost, $35,000; owner, John P. Thornton, 531 East Eighty sixth St.; architect, F. T. Camp.

Eighty-sixth St., s s, 175′ e Second Ave., 2 four-st'y brown-stone front tenements, tin roofs; cost, each, $15,000; owner, James Barry, 342 East Eighty-sixth St.; architect, H. L. Harris.

Ave. A, n e cor. Eighty fifth St., five st'y brick tenement and store, tin roof; cost, $20,000; owner, Mathias H. Schneider, 419 East Eighty-first St.; architect, J. Kastner.

Ave. A, e s, 25′ 8″ n Eighty-fifth St., 3 five-st'y brick tenements and stores, tin roofs; cost, total, $45,000; owner and architect, same as last.

Eighty-fifth St., n s, 72′ e Ave. A, five-st'y brick tenement, tin roof; cost, $15,000; owner and architect, same as last.

East Sixty-first St., Nos. 342 and 344, 2 five-st'y brick tenements and stores, tin roofs; cost, total, $30,000; owner, Margaret O'Sullivan, 74 East One Hundred and Twelfth St.; architect, R. Rosenstock.

Tenth Ave., e s, extending from Ninety-second to Ninety-third St., four-st'y brick building (Home for the Aged), tin roof; cost, $125,000; owner, Methodist Episcopal Church Home, Anna A. Harris, President, 25 East Eighty-first St.; architects, D. & J. Jardine.

Home St., n w cor. Tinton Ave., 4 two-st'y frame dwells., tin roofs; cost, each, $2,300; owner, architect and builder, John Knox, 1167 Union Ave.

North Third Ave., w s, 48′ n One Hundred and Thirty-ninth St., four-st'y brick store and tenement, tin roof; cost, $11,000; owner, John Demarest, 380 Mott Ave.; architect, H. S. Baker; builders, R. Hargrove and N. Douglas.

Greene St., s w cor. Houston St., 2 six-st'y brick stores, tin roofs; total cost, $150,000; owner, Wm. Astor, 23 West Twenty-sixth St.; architect, W. Schickel.

Duane St., Nos. 177 and 179, six-st'y brick store, tin roof; cost, $18,000; owners, John J. Jenkins, 247 West Twenty-third St., and John I. Lagrave, 17 East Fifty-third St.; architects and builders, F. & W. E. Blodgood.

Grand St., No. 586, five-st'y brick tenement and store, tin roof; cost, $11,000; owner and architect, Wm. R. Foster, 28 Canal St.; builders, Peter Tostevin's Sons and Guy Culgin.

Henry St., s e cor. Clinton St., four-st'y brick tenement, tin roof; cost, $8,000; owner, John F. Huner, 226 Madison St.; architect, George Vassar, Jr.

Suffolk St., No. 24, six-st'y brick tenement, tin roof; cost, $19,000; owner, Charles Malevista, 95 Orchard St.; architect, W. Graul.

West Broadway, Nos. 123 and 125, six-st'y brick store, tin roof; cost, $35,000; owners, Ella V. A. Dayton, 256 West Fifty-seventh St. and others; architect, John C. Burne.

Tenth St., No. 196, five-st'y brick and brown-stone tenement, tin roof; cost, $22,000; owner, Anthony Richert, 26 East Thirty-first St.; architect, W. Graul.

West Sixteenth St., No. 528, two-st'y brick factory, tin roof; cost, $4,000; owner, Amedee Castaing, 422 West Fifteenth St.; architect, W. C. Westervelt.

Thirtieth St., s s, 100′ e First Ave., five-st'y brick factory, tin roof; cost, $40,000; owner, Jacob Doll, 321 East Thirteenth St.; architect, Chas. Sturtzkober.

West Nineteenth St., No. 124, six-st'y brick and stone store and lofts, tin roof; cost, $25,000; owner, Edward Janson, 120 West Nineteenth St.; architect, J. Hoffmann.

Broadway, n e cor. Fifty-third St., 5 one-st'y brick stores, tin roofs; total cost, $12,000; owner, Cecile Rusch, Bergen, N. J.; architect, C. C. Haight; builder, L. H. Williams.

Tenth Ave., w s, 225′ n Forty-seventh St., 5 five-st'y brick tenements, tin roofs; cost, each, $15,000; owner, Chas. Lindner, First Ave., s e cor. Sixth St.; architects, A. Pfund & Son.

Sixty-third St., s s, 200′ e Second Ave., rear, three-st'y brick stable, gravel roof; cost, $8,500; owner, Mary D. Peyster, 112 East Thirty-sixth St.; architect, Emlen D. Littell; builders, Moran & Armstrong.

Seventy-seventh St., s s, 175′ w Second Ave., 2 five-st'y brick tenements and stores, tin roofs; cost, each, $18,000; owner, Henry Lipman, 142 East Seventy-second St.; architect, G. W. Spitzer.

Seventy-fourth St., n s, 70′ w Third Ave., five-st'y brown-stone front tenement and store, tin roof; owner, Christian F. Bruggemann, 175 East Seventy-fourth St.; architect, J. H. Valentine.

One Hundred and Fourth St., n w cor. Fourth Ave., four-st'y brown-stone tenement, tin roof; cost, $12,000; owner, architect and builder, Wm. Fernschild, 324 East One Hundred and Fourteenth St.

One Hundred and Sixth St., s s, 130′ w Fourth Ave., 3 four-st'y apartment-houses, tin roofs; cost, each, $20,000; owner, Hugh McGillivray, 1611 Lexington Ave.; architect, John C. Burne.

Eighty-seventh St., n s, 106′ 6″ e First Ave., 8 five-st'y brick (stone-trimmed) tenements, tin roofs; cost, each, $18,000; owner, Thomas Moore, 240 East Seventy-first St.; architects, Thom & Wilson.

Sixty-second St., s s, 200′ e Tenth Ave., five-st'y brick tenement, tin roof; cost, $13,000; owner, Julia Renaud, 243 West One Hundred and Thirty-first St.; architects, Cleverdon & Putzel.

Sixty-second St., n s, 100′ w Ninth Ave., 5 five-st'y brown-stone tenements, tin roofs; owners, Gillie, Walker & Lawson, 538 West Fifty-first St.; architect, M. L. Ungrich; builder, days' work.

One Hundred and Twenty-fifth St., s e cor. St. Nicholas Ave., 5 five-st'y brick stores and tenements, tin roofs; owner, Jas. Cassidy, One Hundred and Twenty-fourth St. and St. Nicholas Ave.; architect, Geo. J. Carey.

Ninth Ave., s w cor. Ninety-third St., five-st'y brick and Vermont marble apartment-house, tin roof; cost, about $150,000; owner, Mrs. E. S. Auchmuty, 61 University Pl.; architects, Renwick, Aspinwall & Russell; builder, The New York Trade School.

One Hundred and Twenty-ninth St., n s, through to One Hundred and Thirtieth St., 425′ e Twelfth St., three-st'y brick car-house and stable, gravel roof; cost, $40,000; owner, St. Nicholas Construction Co., Daniel D. Wylie, President, 697 Madison Ave.; architects, Thayer & Robinson; builder, Thos. Dobbin.

One Hundred and Thirty-second St., n s, 275′ w Seventh Ave., 8 three-st'y and basement brown-stone front dwells., tin and slate roofs; cost, each, $8,000; owner, Isaac E. Wright, 1983 Madison Ave.; architects, Cleverdon & Putzel.

Seventh Ave., w s, between One Hundred and Forty-fifth and One Hundred and Forty-sixth Sts., two-st'y frame engine repair-shop, tin roof; cost, $17,000; owner, etc., Manhattan R. R. Co., 71 Broadway.

Eighth Ave., e s, between One Hundred and Forty-fifth and One Hundred and Forty-sixth Sts., three sections of trestle-work, all joined for storing cars, etc., to be one-st'y high, and of yellow pine; cost, $21,000; owner, etc., same as last.

Bathgate Ave., w s, 185′ 5″ s One Hundred and Seventy-seventh St., two-st'y frame dwell., shingle roof; cost, $3,000; owner, E. S. Westcott, 1882 Washington Ave.; builder, Wm. R. Holder.

One Hundred and Thirty-third St., s s, 200′ e Willis Ave., one-st'y frame dancing-platform, tin roof; cost, $10,000; lessee, August Baur, Southern Boulevard and Willis Ave.; architect, A. Arctander.

One Hundred and Forty-ninth St., n s, 125′ e Courtlandt Ave., four-st'y brick and frame tenement, tin roof; cost, $6,000; owner, George Ott, One Hundred and Forty-ninth St., near Third Ave.; architect, Julius Kastner.

One Hundred and Sixty-ninth St., s s, 50′ w Union Ave., three-st'y frame dwell., tin roof; cost, $4,000; owner, Peter Lotz, 989 East One Hundred and Sixty-ninth St.; architect and builder, Louis Falk.

Third Ave., n w cor. One Hundred and Forty-first St., 2 four and three st'y brick tenements and stores, tin roofs; total cost, $23,000; owner, John Bates, 527 East One Hundred and Forty-first St.; architects, Cleverdon & Putzel.

Alterations.—*Tenth St., No. 175*, four-st'y brick extension, tin roof; cost, $5,000; owner, David Braham, on premises; builders, Dennis Ryan and C. Munch.

Seventh St., No. 58, raise attic to full story, new flat roof, and a four-st'y brick extension, tin roof; cost, $10,000; owner, Ellen T. Mitchell, on premises; architects, Babcock & McAvoy.

Broad St., w s, 100′ s Wall St. (Stock Exchange), lay wooden floor, etc.; cost, $10,000; owner, New York Stock Exchange; architect, J. R. Thomas.

Third Ave., n w cor. Fourteenth St., raise part of building one st'y and a brick extension, etc.; cost, $8,000; lessees, Sohmer & Co., on premises; architects, Berger & Baylies; builders, C. W. Klappert's Sons.

Washington St., No. 466, build party-wall on rear, on line of 288 West St.; cost, $8,000; owner, Estate of Robt. Gaston, John Dickson, exr., of 466 Washington St. and the estate of Henry Lucers, of 288 West St.; builders, John D. McBrien and Samuel Smyth.

COMPETITIONS.

City-Hall.

[At Richmond, Va.]
February 16, 1885.

Proposals are invited **until June 1st, 1885**, for furnishing designs for a city-hall upon which premiums will be paid as follows: —

For first best design, $700.

For second best design, $300.

The Committee on Grounds and Buildings of the City Council reserves the right to reject any and all designs.

For information address the undersigned.

487 W. E. CUTSHAW, City Engineer.

Toronto Court-House.

[At Toronto, Ont.]
City Clerk's Office,
Toronto, Ont., March 4, 1885.

CHANGE OF TIME AND CONDITIONS.

Notice is hereby given that the following amendments have been made to the Instructions to Architects previously issued, viz.: —

(1) That the clause providing for the building being erected in Canadian material be struck out.

(2) That all designs for which premiums are awarded shall be and remain the property of the designer, instead of becoming the property of the city, except the one which is accepted for the erection of the building.

(3) That no prize be awarded to any plan the carrying out of which will exceed $200,000.

(4) That the time for the reception of plans be extended **until the 23d of April, 1885.**

JOHN BLEVINS,
483 City Clerk.

PROPOSALS.

House of Refuge.

[At Hudson, N. Y.]
House of Refuge for Women,
Hudson, N. Y., March 16, 1885.

Sealed proposals will be received, addressed to J. W. Hoysradt, President of the Board of Managers of the House of Refuge for Women, Hudson, N.Y., or delivered at his office **until 12 o'clock at noon on the 16th day of April, 1885**, for furnishing material and doing work on the buildings for said House of Refuge, for women, to wit: —

The main building, the house of detention or prison, four cottages and hospital, in accordance with plans, drawings and specifications made by W. H. Miller, architect, and now to be seen at the office of the Hudson Iron Company, at Hudson, N. Y., where the superintendent, Charles B. Cure, will exhibit same and furnish copies of specifications and proposal blanks.

Each proposal must be inclosed in a sealed envelope, addressed to Gen. J. W. Hoysradt, Hudson, N.Y., indorsed "Proposal for House of Refuge for Women," and must be accompanied by a bond with two sureties, residents of the State of New York, each in the amount of six thousand dollars guaranteeing that such bidder, if his bid shall be accepted, will execute a contract for the performance thereof by him, and will perform said contract to the full intent of its terms.

Each proposal must contain separate and distinct bids on each of the seven buildings above named. The Board of Managers reserving the right to accept the same as to any one or more of such buildings, and reject it as to the other or others. Also, to reject any and all bids.

Such contract to be made in accordance with the aforesaid plans and specifications, and with such conditions and provisions as the Board of Managers may deem necessary to protect the interests of the State.

J. W. HOYSRADT,
MRS. SARAH L. S. GUERNSEY,
MRS. C. A. SPENCER,
JOHN CADMAN,
CHARLES TRACY, } Managers.

485